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# Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIV. CHICAGO, ILL., OCTOBER 22, 1914. Number 12.




## SPECIAL FEATURES OF THIS NUMBER

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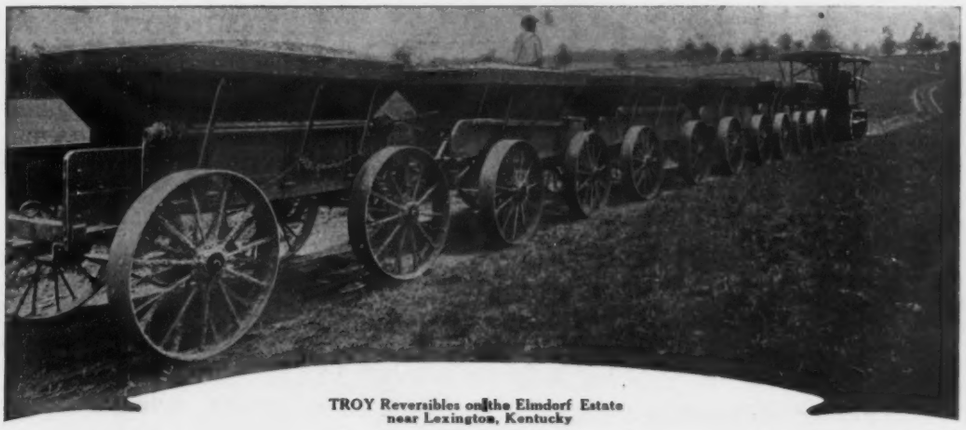


TROY Reversibles on the Elmdorf Estate near Lexington, Kentucky

# One Troy Train Doing the Work of Eleven Teams at Less Than Half the Cost Per Ton Mile

With such results no one can question why Mr. J. M. Henry, the Assistant Highway Engineer of Fayette County, says of this train: "I cannot commend its work too highly." He further adds that on the long haul of three miles the work was done far more satisfactorily than with teams, and all stone dumped just as it was wanted.

And this is not an extraordinary performance of Troy Trains. On the contrary, every Troy Train installed on a big hauling job, *and kept moving*, has cut hauling costs over 50% and often as much as 80%. And, besides the hauling saving, a Troy Train is always in readiness. It never holds out for higher pay, and its presence on the job has a marked moral effect on the price of hired teams.

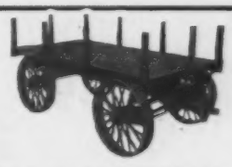
## Troy Reversibles

handle anything from sand to paving brick in the dump wagons, up to telegraph poles on the platform trucks. They follow in the track of the engine under any conditions, and never need be turned around, as they run equally well in either direction. This feature is of great value in road building for Troy Trains can be backed right up to the finished road.

Troy Reversible Spreader. This spreader is most simply operated; one man can dump a whole train. It will spread the load from 2 to 18 inches in depth or dump it entirely in one spot. Absolutely reliable—simple and effective.

Let us tell you of the economical service that 250 of these trains are giving today—not only on road-building, but on a hundred other big hauling jobs—We'll send you some interesting comparative data that shows what many concerns have accomplished—how they are hauling materials at from 4 to never more than 10c per ton mile. Compare these records with your own—You'll investigate Troys. Get our Hauling Book No. 8—if you want to know how to make your hauling costs go twice as far.

**The Troy Wagon Works Co.**
**Second St., TROY, OHIO**



Troy Reversible Platform Truck for hauling Brick, Cement, etc. This truck has a capacity of 10,000 lbs. on a platform 12 ft. long and 6 ft. wide. Platform is 4 ft. from ground, stakes 23 in. above platform. Also made with extension platform.

# Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIV. CHICAGO, OCTOBER 22, 1914. Number 12

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Cement products in the shape of building materials find 1914 the best year of history.

Plastering activities have every man working and just about the usual tonnage is moving.

The only virtue once left to wooden lath was its cheapness. Now it has become the most expensive of all building materials and is only good for kindling wood.

The Chicago Cement Show next February is being formulated so as to direct the impetus of the occasion to expanding the business of the concrete industry.

Building material business is generally reported good in all places except the great exchange centers. In the big cities alone have the foreign disturbances of war made any serious financial trouble.

Careful economists tell us that next year, 1915, will see very heavy investments in building projects for the reason that railroads and some other industrial securities will not attract surplus capital, as has been the case in the past decade or more.

The usual annual transfer of building material activities to the Southern markets in the fall has not materialized as yet. Doubtless the cotton situation has a whole lot to do with this. It is a pity that we are at the mercy of the gunmen and English spinners and knitters with our greatest American monopoly.

Agricultural lime has a golden opportunity while the fertilizer supply is shut off indefinitely. While lime, properly speaking, is not a fertilizer, it will accomplish the same results for a year or two, and after the war is over and fertilizers get cheap again the soil can be replaced in full. Present profits will come out promptly by the use of lime.

Rock crushers are full of business at last. Street and road repairs are using a whole lot of crushed rock and country concrete work was never more active. The railroads have been notoriously "broke," so that ballast orders have not been forthcoming with the usual regularity; but that does not mean that the ballast is not needed by any means.

American railroads don't need higher rates, but they do need sensible business management, coupled with at least one per cent of old-fashioned truth and honesty in equal proportions. These ingredients, well compounded and consistently applied regularly, will cure all the railroad troubles of the country in short order. Perhaps there is no way outside of government control to straighten out the tangle.

Perhaps the big war is the physical expression of all the unrest and dissatisfaction that has obtained throughout the world for more than a decade in which mankind in every language has been clamoring for a "square deal." All of us know that this or that point is not exactly straight, and perhaps if any of us were wise enough to know it all we would realize that nothing at all is straight. Whence cometh a leader of thought, greater than any captain of armies, who shall show the straight path between man and man? Shall he be recognized at once or will his work shine forth long after it is finished to change the currents of human activity into walks of contentment? The time is ripe. The world awaits his advent.

Cement plastered exteriors are admittedly the most attractive and desirable finish for the modern idea of domestic architecture. "The only trouble is that it does not stay put," is repeated over and over again. The trouble is not with the plaster nor with the man that puts it on, but it is wholly a matter of the integrity of the surface that is covered with cement plaster. No wooden structure is fit for such a purpose unless the studding is cross-bridged very firmly. The studding should be no lighter than 2x6, full sheeted and all well anchored to sills attached to concrete or masonry foundations. Tile masonry walls are 100 per cent better than any wooden construction. In fact, they are about perfection and cost no more than wood.

# WITH YOU and ME

William B. Schaffer, a cement industry promoter, of South Bethlehem, Pa., who recently returned from England, is now on his way to Australia, where he will manage the erection of a large cement mill.

John Kleibsheidel, for many years manager of the Hokendauqua Bottling Works, Catasauqua, Pa., has severed his connection with that concern to accept a position as head machinist with the Giant Portland Cement Co., of Egypt, Pa.

H. W. Millett, well-known brick manufacturer at Sellersville, N. J., and who has offices at 931 Arch street, Philadelphia, has been forced to seek larger quarters at 1235 Arch street. The move was made necessary by the steady increase in business.

Charles Early, of Elma, Wash., has invented a new combined road grader and gravel spreader which, it is claimed, will dump gravel at any desired speed, spread the gravel and grade the road at the same time.

H. H. Frazer, sales manager for the R. B. Tyler Co., of Louisville, Ky., was taken ill of typhoid fever on Sunday, Oct. 11, and removed to an infirmary. He had been feeling ill for several days but did not consider it anything serious. However, he is doing very nicely and hopes to be back on the job inside of 60 days. George R. Yancey and R. B. Tyler are handling his work in his absence.

J. C. Lovelace, general manager of John A. Denie's Sons Co., Memphis, Tenn., spent the first few days of October in Chicago. Business brings Mr. Lovelace to Chicago several times a year and his Chicago friends are always glad to see him; and Mr. Lovelace always tries to get around among them. This last trip, however, kept him so busy attending to the wants of his firm that his friends were compelled to forego the pleasure of his company for even a brief visit.

To facilitate the prompt shipment of cement, the Lehigh Portland Cement Co. has established a selling and distributing office at Des Moines, Ia., which will be in charge of A. Murray Jones. "Cars will be in transit at all times for diversion on rush requirements," according to Harold M. Scott, Western sales manager. With the big Mason City, Ia., mill located in the center of the Northwest market and with sales and distributing offices at Minneapolis and Des Moines, the Lehigh Co. is well equipped to handle a good portion of the orders for cement in this market.

Milwaukee county now has 60 miles of concrete roads in successful operation and the county will spend $723,044 for road improvement, mainly for concrete highways, during 1915, if the recommendations of the joint committee on highways, laws, legislation and rules and treasury and taxes are, accepted by the county board. The state aid to the county this year will amount to $233,268.21 and the automobile tax will be approximately $7,776. The law provides that to secure the state aid the county must appropriate twice the amount of the state levy. It has been decided to re-employ H. J. Kuelling as county highway commissioner for another year, increasing his salary to $3,600 a year. Mr. Kuelling stood highest in the examination just held by the state highway commission.

Harry A. Rodgers, secretary of the Indiana Building Material Dealers' Association, and connected with the firm of A. B. Keeport & Co., Indianapolis, Ind., is rolling up his sleeves to bring in new members for the Indiana association, so that with the coming meeting every community of the Hoosier state will have its builders' supply representative on the job. Harry is earnest in everything he does, as his countenance appearing on this page clearly indicates.

H. A. ROGERS, SECRETARY INDIANA BUILDING MATERIAL DEALERS' ASSOCIATION.

The Western Paving Brick Association held its monthly meeting in Kansas City, Saturday, October 17. The business taken up consisted chiefly of routine matters, though there were interesting discussions as to the effects of the war on improvement projects.

Secretary J. Grayson Steffey, of the Del-Mar-Col Building Material Dealers' Association, of Maryland, Del., and the District of Columbia, has just received from the printers a 16-page booklet containing the constitution and by-laws of the new association. The booklet is attractively printed and of vest-pocket size. The next meeting of the organization will be held at Baltimore on November 17.

There are a good many things that L. V. Lindquist, district manager of the Stephens-Adamson Co., Chicago, is sure about in connection with the merits of S.-A. equipment, but as a guesser we have to remove our head adornment to Mr. Lindquist. His guessing ability in just one instance amounted to one brand new 1915 model, $2,000 Buick auto, which he recently won by reason of his close estimate of the sales of half-hose in a contest given by a prominent Chicago haberdashery.

W. P. Hearst, of the Cleveland Material Co., drove his automobile with a party of five from Cleveland to Atlantic City last week and spent several days with the A. E. R. O. convention in session there. He reports the trip a complete success through the good roads of Ohio, New York and Pennsylvania, not to mention the speedway between Camden and Atlantic City.

The New York highway department has inaugurated a change of some importance in the standard specifications with regard to constructing concrete roads, in that a mixture of one part of Portland cement, one and one-half parts of sand and three parts of stone is called for. Breaking tests of concrete cubes have been taken from the material as delivered from the mixer, with the result that six inch cubes 28 days old have been broken under pressure in the testing machine generally at from 3,000 to 4,000 pounds per square inch, running as high in some instances as 4,500 to 5,000 pounds.

The lining of irrigation canals with concrete in order to prevent losses in the transmission of water is discussed at some length in a forthcoming bulletin of the United States Department of Agriculture (No. 126) entitled "Concrete Lining as Applied to Irrigation Canals." The census of 1910 shows that there were more than 120,000 miles of unlined irrigation canals in the West. Forty per cent of the water that passes through this, the author estimates, is lost, or, if allowance be made for that which is later recovered by lower conduits the loss is still more than 25 per cent. So much of this loss could be obviated by the use of concrete that in many places the value of the water will more than offset the increased cost of construction. It is a professional paper and of value to engineers and others engaged in irrigation work and is not intended for general distribution.

## Scheduled Meetings and Shows.

**Oct. 28-31.—Northwestern Road Congress, Annual Convention, Auditorium, Milwaukee, Wis.**

**Nov. 9-14.—American Highway Association. Fourth American Road Congress, Atlanta, Ga.**

**Nov. 17.—Mar-Del-Col Building Material Dealers' Association meeting at Emerson Hotel, Baltimore.**

**Nov. 18-20.—Washington State Good Roads Association, Spokane, Wash.**

**Dec. 14-17.—American Road Builders' Association. Annual convention, Chicago.**

**Jan. 21-23, 1915.—Nebraska Retail Lumber Dealers' (Lumber and Building Material Dealers) Annual Convention, Rowe Hotel, Omaha, Neb.**

**Jan. 26, 27, 1915.—Retail Lumber Dealers' Association of Indiana, Indianapolis, Ind.**

**Feb. 8, 9, 1915.—National Builders' Supply Association. Annual convention, Hotel Sherman, Chicago.**

**Feb. 10-12, 1915.—Illinois Lumber and Builders' Supply Dealers' Association. Annual convention, Hotel Sherman, Chicago.**

**Feb. 10-17, 1915.—Eight Annual Chicago Cement Show. Coliseum, Chicago.**

## Fourth American Road Congress.

Final arrangements for the Fourth American Road Congress, to meet in Atlanta, Ga., during the week of November 9-14, are nearing completion.

In accordance with a resolution adopted by the executive committee of the American Highway Association, on June 15, 1914, an amendment to Article V of the constitution will be offered at the annual meeting of the association, providing that all officers, except those of president, vice-president and treasurer, shall thereafter be appointed by the executive committee. The annual meeting will take place in the Auditorium Armory, on Thursday, November 12, 1914, 8:00 P. M., at which time the proposed amendment will come up for consideration and action.

**Program.**

The program carries the names of 25 official heads of highway departments of the National and state governments who will present every phase of construction, maintenance and administration. Federal aid to road improvement will be ably discussed by United States senators and representatives. The executive branch of the Federal government will be ably represented by a number of prominent officials and it is hoped that President Wilson himself will attend. If he does not, it is practically assured that a member of his cabinet will address the congress.

The American Bar Association will officially take part in the session of the congress devoted to road legislation. The American Bankers' Association will have a committee to co-operate in the holding of a Finance session. The National Civil Service Reform League will hold a session devoted to a discussion of the merit system in road administration. It is expected that John H. Fahey, president of the Chamber of Commerce of the United States, will be one of the speakers at this session. Fairfax Harrison, president of the Southern Railway, will emphasize the importance of the relationship between the railroad and the public road. Highway engineering schools and colleges will be given attention through addresses by professors of engineering of various colleges.

On the evening of the opening day Governor and Mrs. Slayton will give a brilliant reception to the delegates and visitors at the State Capitol. On Tuesday evening the annual road congress banquet will be given at the Kimball hotel. On Wednesday afternoon from 4:00 to 6:00 o'clock a tea will be given in honor of the visiting ladies, at the Georgian Terrace hotel. On Thursday evening it is planned to have an organ recital and musical at the auditorium, in which a trained chorus of 250 voices will be a feature. Atlanta is planning to give a welcome of such warmth and wholeheartedness as will cause the event to live long in the memories of the visitors.

**Exposition.**

The elaborate exhibit of the U. S. Office of Public Roads, which is being prepared for the Panama-Pacific Exposition, will be shown intact at the congress and will include not only exact models of every known type of road, but will also comprise special models showing road location, the beautifying of the roadside, and mountain road construction as exemplified in the splendid Swiss roads. The exhibits will be located in the Auditorium. Taft Hall, in which the sessions of the congress will be held, is in the Auditorium. A special feature of interest to exhibitors will be a moving picture exhibition.

**Reservations.**

Several of the leading Atlanta hotels have already been booked to their capacity, and it is suggested that all persons contemplating a visit to the congress should make reservations without delay. Information may be obtained concerning hotels from Fred Houser, secretary, Convention Bureau, Atlanta, Ga. Information about the program and the congress in general may be obtained from I. S. Pennybacker, executive secretary, Colorado building, Washington, D. C., and concerning exhibits from Charles P. Light, business manager, Colorado building, Washington.

**Railroad Rates.**

A rate of one and one-half cents per mile has been obtained from the Southeastern Passenger Association, which embraces the territory south of the Potomac and east of the Mississippi rivers. In the Eastern Trunk Line territory and in the Western Passenger Association territory the rate will be two cents per mile. A number of special trains will be operated for the benefit of delegates and visitors. One of the specials will leave New York at 4:35 P. M., November 7, arriving at Atlanta at 4:50 P. M., November 8. This special will make stops at West Philadelphia, Baltimore, Washington, Danville and Charlotte, and will connect for passengers from Richmond and Norfolk. Another special will leave Chicago on the evening of November 7, and will pass through Indianapolis, Cincinnati and Chattanooga.

# The BUILDERS' POET

### THE SONG OF THE SOLDIER.

When Tommy Atkins battles
In the trenches on the Aisne;
Through weary hours of waiting,
Through the dead'ning leaden rain;
He cheers the hours with singing,
As he lies there crouching low,
"It's a long, long way to Tipperary,
It's a long, long way to go."

Throughout the autumn evening,
Through nights of chilling dew;
Through dragging hours he's dreaming
Of a sweetheart waiting true;
He joins the rolling chorus,
With hoping heart aglow,
"It's a long, long way to Tipperary,
To the sweetest girl I know."

He knows the hidden meaning
Of sadness underneath,
He knows the cheerful singing
But means a future grief;
But he joins it ever smiling,
And catches up the air,
"It's a long, long way to Tipperary,
But my heart's right there."

Suggested by the song that all England is singing today, the chorus of which is:

"It's a long way to Tipperary,
It's a long way to go,
It's a long way to Tipperary,
To the sweetest girl I know;
Good-by Piccadilly,
Farewell, Leicester Square;
It's a long, long way to Tipperary,
But my heart's right there."

—Frank Adams Mitchell.

**LINK-BELT LOCOMOTIVE CRANES.**

The Link-Belt Co., Chicago, Ill., has issued an elaborate 40-page catalog of Link-Belt locomotive cranes. The booklet is a high-class specimen of the printer's art and is amply illustrated. Locomotive cranes occupy today a highly important place in the art of handling materials. In the one machine is combined a portable hoisting engine, swinging derrick, grab bucket unloader and switch-engine.

Beginning some 15 years ago with the manufacture of very large radius heavy duty cranes for coal storage work, the Link-Belt company entered the standard gauge field, applying to their standard gauge crane the experience gained in the manufacture and operation of these large machines, supplemented by the most modern practice and improvements of the lighter designs. The Link-Belt standard crane is a machine of all-around utility; it is driven by steam or electricity, and equipped to operate grab bucket, hook block, electric lifting magnet, drag scraper bucket, steam shovel dipper and pile driver. Copies of the catalog may be obtained by writing to the concern.

# The RETAILER

## Trestle and Bins Feature Chicago Supply Yard

### Installation of Improvements by Chicago Retail Firm Proves Vital Factor in Economical Handling of Materials and Enlarges Area of Delivery

For the economical handling of building materials there is nothing more important around the up-to-date yard than trestles and bins. With the increased use of hopper cars, dealers are beginning to realize the advantages of having their materials shipped in such cars and unloaded directly into the bins where such materials are stored. There is no longer any necessity for shipping sand, gravel and crushed stone in anything but hopper cars. Unlike materials which are affected by the air, these materials can be shipped in open cars with hopper bottoms and may be economically unloaded through the use of the new devices to be found on such cars.

An actual requirement in yards where the improved method of handling materials is desired is that the yard level be a great deal lower than the tracks upon which the cars are stationed for unloading. Without a distance of at least 18 feet from the ground to the top of the trestle, the use of bins for the receiving and delivery of materials will not be entirely satisfactory. There must be at least nine feet under the bins to allow for the passage of teams and wagons and the bins must

W. L. WOODS, PRESIDENT AND MANAGER OF THE STANDARD MATERIAL CO.

have a depth of sufficient size to allow for the storing of a fair quantity of materials. The popular size bin is at least 10 feet deep.

A practical illustration of how the installation of bins for receiving materials from cars and loading them automatically in wagons is presented at the yards of the Standard Material Co., Sixty-sixth street and the Belt Railroad, Chicago. This company, which was organized in 1909, has recently constructed a trestle in conjunction with five bins on a plot of ground 300 feet deep by 79 feet wide. The trestle work is in the shape of a "Y" and extends from the belt line tracks to the southeast corner of this property where one branch of the "Y" leads directly north. The other, branching off about 50 feet from where it leaves the belt line, crosses diagonally the plot of ground to a point directly in back of the brick building which has been constructed for office purposes.

The east spur of this siding holds three cars at one time and is so constructed that when the cars are correctly placed they may be completely unloaded without moving. The reason for this is that the bins have been constructed to correspond with the length of freight cars, each bin being long enough to receive all of the material as it is discharged from the hopper car above.

Ranging from north to south on the east track there are three bins, the first for bank sand, the second for torpedo sand and the third for crushed stone. The small portion of the main track of the siding has also a bin for crushed stone as has a part of the west spur. The reason for this is that there is a great demand for crushed stone by the contractors purchasing their materials from the Standard Material Co.

**Large Demand for Roofing Gravel.**

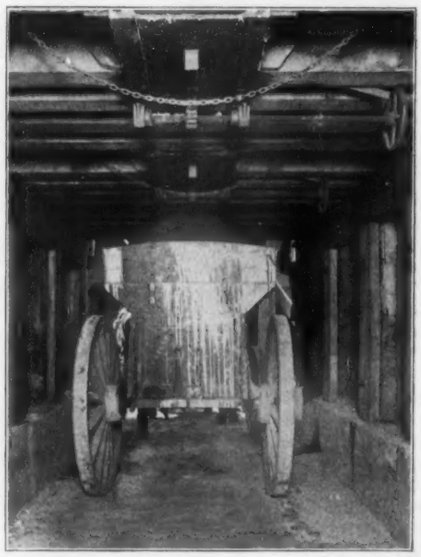
On the west spur there is also a bin for roofing gravel which is constructed similar to the others and which may be filled automatically from hopper cars. At the end of this spur there is a lime bin with a capacity of approximately 1,500 barrels. Due to the fact that lime is liable to air slack in transit if shipped in open cars, it was found impossible to construct these bins similar to the others. Open bins would also permit rain water to come directly in contact with the lime. The lime bins while extending underneath the tracks are also built on the side of them and elevated so that windows appear at an even height with the floor of the box cars in which the lime is shipped. This enables the laborers to shovel the lime into the windows of the lime bin. The bins are 10 feet deep and 22 feet wide. Passages have been constructed underneath these bins and will permit the loading of four wagons at any given time.

The draws underneath the bins are constructed with gears and work horizontally. A rod from the gear wheel extends to the outer edge of the passageway where a wheel six inches in diameter is placed to open and close the draw. The gears of the draw are placed on top of the gear wheel, and when the outer wheel is revolved by the teamster it acts upon the gear wheel, which in turn forces the draw either open or closed as desired.

Alleys on either side of these bins permit the teams to enter at one end of the bins and leave at the other. They are so constructed that the alley through which the teams leave runs past the office where the material is properly checked.

Originally the ground was not low enough to permit head room under the bins and for this reason it was necessary to excavate to a depth of three feet.

The total capacity of these bins which are substantially constructed is 65 cars. Yellow pine uprights, measuring 12 by 12 inches, were used in conjunction with three-inch boards in building the bins. The bearing timbers are of oak and measure 12 by 12 inches. The bins are constructed with a flat bottom. Explaining the reason for this, Walter L. Woods president and treasurer of the company, stated that the materials form their own hopper and that part of it which remains in the corners of the flat bottom bins is in reality a re-



WAGON ROAD UNDER BINS. NOTE LOCATION OF DRAWS.

serve and when materials run low laborers are sent into the bins to shovel this reserve into the wagons.

In designing the bins, Mr. Woods conferred with one of the engineers of the Chicago and Western Indiana railroad who drew the plans at the company's bidding. The trestle work is similar to that in use by railroads and the foundations which are of concrete contain the mixture as specified in railway specifications. They are three feet six inches below the ground and two feet six inches above ground. There were 1,040 barrels of Portland cement used in the construction of their piers. John A. Timm, a Chicago contractor, constructed the trestle and bins.

Features of the lime bins are draws at the bottom which are a trifle larger than the draws used in the other bins, because of the fact that large lumps of lime are likely to clog the smaller aperture. By means of this device it is possible to load 30 or 35 barrels of lime on a wagon in from two to three minutes' time. By the aid of sand, gravel and crushed stone bins and their draws it is possible to load a two-yard wagon with these materials at an average of 40 seconds. A wagon of this size has been loaded in 20 seconds, but it is an exception to the rule.

As a demonstration of the rapidity with which materials may be delivered by this new system, Mr. Woods recited the experiences of a roofing contractor who required 50 yards of roofing gravel on short notice. He telephoned the office in the morning and asked if the 50 yards could be delivered that day. The response was in the affirmative and at three o'clock that afternoon the last wagon load was on its way to the job. Not only was time saved in the loading of materials, but the usual long

string of wagons which are compelled to wait when materials are shoveled from the original cars into the wagons was eliminated, thus saving additional time. Mr. Woods states that as a result of the improvements his company is able to deliver to a greater area, claiming that his field of operations has been extended at least a mile in every direction.

Another simple time-saving feature of the Standard Material Co., which recommends itself to all retailers who endeavor to install systems in their yards is a bell which is placed in the arch above the entrance to the yard. A cord is extended from this bell to a height parallel with the driver's seat on the wagons that enter. It is placed here for two reasons, first, to announce the arrival of the teamster for materials and, second, to notify the yard superintendent what materials are wanted. For obvious reasons the superintendent may desire a certain material drawn from either one of the four draws in the bottom of the various bins. As a teamster enters he pulls the cord in accordance with the system adopted by this company, which is one ring for crushed stone, two for bank sand, and three for torpedo sand. As soon as the gong has sounded the superintendent, who is usually at the top of the bins, puts in his appearance and tells the teamster just where to secure the material desired.

Both torpedo and bank sands are now being stored up in a corner of the yard where the trestles do not extend. This spot is adjacent to the right of way of the belt railway and necessitates the unloading of a car in record-breaking time, so as to clear the tracks for the railway company's crews. The sand is being stored in two great piles and when winter arrives it is hoped that there will be between 3,000 and 4,000 yards in each pile. By digging a tunnel into the sand and taking the material from the interior there will be no danger of sending frozen material to the jobs. The bins cannot be successfully used in the winter time as the material is bound to freeze.

In connection with the stables of this company a blacksmith shop is conducted where two blacksmiths are constantly employed. They find plenty to do in keeping the horses' shoes in good order and repairing wagons. A good blacksmith should also be a good wagon maker.

Mr. Woods is not new at the building material business, having entered the industry in 1892 and was at one time president of the Wisconsin Lime & Cement Co., one of Chicago's largest building material firms.

"Securing the confidence of contractors by square dealing is the reason why this company has made such marvelous strides forward," said Mr. Woods. A complete line of building materials is always carried in stock and is listed by the Standard Material Co. as follows:

For the mason—brick, rubble stone, lime, bank sand, torpedo sand, crushed stone, screenings, gravel, flue lining, wall coping, Portland cement, Louisville cement, white Portland cement, waterproof compounds, damp proofing paint, pin anchors, partition tile, fire brick, fire clay; for the plasterer—wood lath, metal lath, one-inch wood lath, stucco, hair, fibre, wall plaster (sanded), wall plaster (fibred), wall plaster (finish), wall plaster No. 4, damp proofing paint, lime, hydrated lime, bank sand, beach sand, white sand, channel iron, corner beads, staples, plaster board, partition tile; for the cement worker —Portland cement, white Portland cement, waterproof compound, damp proofing paint, hydrated lime, crushed stone, torpedo sand, screenings, white sand, gravel; for the roofer—roofing gravel, pitch, tar, asbestos shingles, felt, red rosin paper, "Amazon" rubber roofing, sanded rubber roofing; for the sewer builder and plumber—sewer pipe and fittings, Utica cement, Portland cement, brick, drain tile, catch basin covers, catch basin lids, bank sand; for the carpenter—asbestos shingles, lath, damp proofing paint, tar paper, red rosin paper; for the hardware dealer—pitch, tar, red rosin paper, ta paper, sanded rubber roofing, and graveled rubber roofing.

"We carry a complete line of masons' and plasterers' material," says Mr. Woods. "The only line in which we do not engage is the handling of press brick."

In addition to the regular line of building materials the Standard Material Co. handles great quantities of rubble stone. They have a specialty man in this department who pays attention to nothing else. His name is John Forde, and it is said that he is the best rubble stone salesman in Chicago.

The officers of the Standard Material Co. are Walter L. Woods, president and treasurer; Christian Becker, vice-president; F. B. Carver, secretary.

### Rapid Developments in Five Years.

The Standard Material Co. was organized on June 1, 1909, and conducted their business from an office, warehouse, and yard leased to them by the Chicago and Western Indiana railway. In addition to the warehouse and yard they occupied a small barn which they rented. Due to the increase in the number of teams it was found necessary in 1911 to build the present barn, which has stalls on the first and second floors and can accommodate 72 horses.


BIRD'S-EYE VIEW OF STANDARD MATERIAL CO.'S PLANT, SHOWING TRESTLE AND BINS WITH CAPACITY OF 65 CARS OF CRUSHED STONE, SAND AND GRAVEL.


VIEW OF THE DELIVERY EQUIPMENT OF THE STANDARD MATERIAL CO., WITH BARN IN BACKGROUND

At the close of last summer's business it was decided that improved methods of handling materials were absolutely necessary if the rate of growth of the Standard Material Co. was to continue. Accordingly plans were drawn and work was started last November on the bins and trestle now in use and shown in an accompanying illustration. The construction work continued throughout the winter and the bins were completed the latter part of February, receiving their first materials on March 1.

Mr. Woods emphasized the necessity of having sufficient storage facilities so as to be in a position to at all times accomomdate the trade. "It is also a great saving feature," said Mr. Woods, "as demurrage charges occur when you least expect them; for example, in Chicago the building season held up in fine shape last season until February. The weather was ideal and work was going on in magnificent form. Then suddenly it turned cold; and dealers who were filling orders found themselves with materials in their yards and on the way which they were compelled to store until called for by the contractors. Not being in a position to handle numerous carloads of lime that we were receiving at that time we were compelled to leave the material upon the track and watch $190 disappear in demurrage charges. Now that our lime bin has been constructed we need not worry about the demurrage charges on lime. In like manner we can quickly dispose of all other materials."

Because of the poor condition of the Chicago market during the last few months, the Standard Material Co. has found it advantageous to add new lines, such as coal, coke, hay, oats and feed. Stocks are now on hand and the selling force is actively engaged in disposing of them in conjunction with the builders' supply line.

## "Build With Us" Slogan Takes.

The Wheeling Wall Plaster Co., of Wheeling, W. Va., in addition to its manufacturing and wholesale departments, conducts successful retail yards in Wheeling. To aid them in securing their share of the business of that city and its surrounding towns this company has adopted the slogan, "Build With Us," and in addition to a complete line of building materials they emphasize the fact that one of the reasons why they should secure the retail business of the communities in which they operate is the fact that they can be of "service" to their customers. "Service" is one of the big words that pulls trade for this company. They use this word in speaking of their large warehouses and yards and about the convenient locations for quick delivery and shipments. They also use it in connection with their sand and gravel dredging fleet.

Other arguments are that they are in a position to give service because their prices are consistent with quality and service, they have a stock that is complete and comprehensive and they employ business methods that inspire confidence. Being supplied with a big team and truck equipment and carrying nothing but standard high grade products they feel justified in stating that they are in a position to be of the utmost service.

A booklet, entitled "Our line of building materials," has just been issued by the Wheeling Wall Plaster Co., and in the center of the front cover of this booklet appear the words "Build With Us," which slogan they are trying to impress upon the builders of Wheeling and vicinity so that the words will come automatically from the lips of prospective builders and will naturally mean the purchase of supplies from this company when they finally build.

An attractive little fibre-paper wallet is being presented to customers and friends of the Wheeling Wall Plaster Co. One of the attractive features of this wallet is the space reserved on one side of it for the name and address of the user.

## Toledo to Have Large Yard.

The Toledo Pulp Plaster Co., of Toledo, Ohio, has acquired a tract of land comprising approximately 100,000 square feet, with a frontage of 400 feet on the L. S. & M. S. R. R., on the Detroit branch, upon which a large gang of men are at work converting it into a builder's supply yard. This yard will be entered by two spurs, each about 400 feet long.

According to H. N. Hansen, this acquisition of property gives the Toledo Pulp Plaster Co. the largest building supply yard in Toledo, which they intend to stock with an entire new line of building materials, such as sewer pipe, building blocks, sand, gravel, stone, etc. This company also intends to carry a full line of cement, lime, plaster and kindred materials.

Work is now progressing on the office which will be a one-story brick building comprising six rooms and will be finished with a white pebble dash exterior and a green tile roof. This building will be ready for occupancy in about one month. As soon as it is completed, work will be begun on the remodeling and removing of the buildings already on the property.

When the plaster mill is completed it will have a capacity of about five carloads of plaster per day.

According to the officers of the company the present move has been necessitated by the enormous growth in their business, which has more than trebled in the last five years.

The manufacturing and wholesale end of the business is represented by three salesmen in Michigan, two in Ohio and two in the city of Toledo. This force will be increased with the beginning of the new spring business.

D. A. Hemley is president of the company; D. C. Hemley is vice president, and R. L. Witters is secretary-treasurer and general manager.

## Fleecing Supply Manufacturers.

Soliciting funds from manufacturers and alleging himself to be the son of one of the leading building supply men is the latest venture of a clever and evidently versatile crook, according to W. T. Rossiter, general manager of the Cleveland Builders' Supply Co., who describes an experience Samuel Cabot, of Boston, had with the individual engaged in this nefarious business.

"A party representing himself as J. Emerson Kling, son of John A. Kling, president of our company, has been endeavoring to secure funds from manufacturers," says Mr. Rossiter. "On Oct. 9, this party appeared at the offices of Samuel Cabot, in Boston, claiming to be Mr. Kling's son and stated that he was on his wedding tour and had had his pockets picked. He even sent a wire in the presence of Mr. Cabot, to 'John R. Kling,' at Prospect avenue, Cleveland, stating that he was asking him for money. Fortunately, although he asked for $200, he received but $16, enough to pay his fare to Brooklyn. This party has even had cards printed with the name of the Cleveland Builders' Supply Co., our telephone and office address on them."

Mr. Rossiter expressed the wish that manufacturers of building materials would keep on the lookout for this pretender, thereby saving themselves and their friends from being "stung."

## Frisco Business Becomes Quiet.

San Francisco, Oct. 17.—As far as new private undertakings are concerned, there is at present less than the usual amount of activity in San Francisco and in the other coast cities. The building records for the past month or two have shown a considerable drop, due to the financial conditions following the outbreak of the European war. Material dealers are, however, still fairly busy supplying materials for contracts already let.

In San Francisco and at some other points there is a large amount of public and semi-public work under way and in plan, including the municipal buildings at the San Francisco Civic Center, buildings and road work at the Panama-Pacific Exposition, street paving, sewer work, United States Government work at the Presidio, and the new Southern Pacific Railroad depot. In the country the most important features are the building of a consideralbe number of concrete bridges and the construction of the California state highway. Contracts for about 120 miles of state highway to be constructed with a concrete base and an asphaltum top have just been let. There is also a good deal of sewer work and school and hospital building going on in the country, with a large amount more to be done as soon as municipal and district bonds can be marketed.

## The Columbus Receiverships.

During the past few weeks two prominent concerns in the builders' supply business at Columbus, Ohio, have gone into the hands of receivers, the F. Hunter & Sons Co., and the Columbus Builders' Supply Co. The statements of the receivers set forth that these concerns have attempted to do a larger volume of business than their capital warranted.

The building material market at Columbus has been badly cut up for several years. It has been recognized that there were too many firms dividing the volume of business afforded by the progressive Ohio city, so that there was not enough to go around profitably. In order to keep the teams moving, for the past two seasons there has been a flagrant cutting of prices, and inordinately low quotations for materials has been the rule.

When the financial stringency started in so that accounts had to be carried over from month to month in order to give the contractors a chance to get the jobs to a point where partial collection could be made, matters became worse and worse, until the fall down of the two concerns mentioned brought the situation in the Columbus market to a showdown.

It just happens that Columbus is so located in the center of the great state of Ohio as to have a freight rate particularly advantageous for quotations of the manufacturers of material from every direction. Several years ago a prominent dealer called the attention of one our scribes to the fact that more different brands of cement were sold in Columbus than in any other American market and the same thing is true of the whole line of brick and clay goods as well as lime and plaster. The very men at the head of the concerns who have been retired have realized for a long time that the business was overdone in Columbus, but there was no way for them to quit and it was just a matter of plugging along without much hope that the conditions would ever improve considerably. The very location of the market has forced dealers to carry stocks beyond their means, and the fierceness of the competition has made these overstocks sell below the rightful values with reasonable overhead charges.

With this condition well in mind Columbus credits in the building material business have for several years not been considered very desirable, even though the representative men in the business were known to be men of means and good business ability. If this had not been true the suspension of credit would have come long ago.

In both of these cases the receivers of the corporations are continuing the business so as to dispose of the stock on hand and clear up the bills, for with reasonable expectations of delayed collections both of these concerns may pay out, and it is the hope of the receivers, as stated in their report, to sell out the plants and business as running concerns. It would be better if both of these concerns could be absorbed or consolidated with others now operating so as to reduce the division of possible business, and this solution could doubtless be effected were it not for the fact that it is almost certain other concerns not now handling building materials would soon begin to take on first one item and then another until by the end of next season there would be two or three more dealers developed with a partial or a full line of building materials.

Columbus has had a wonderful growth during the last 12 or 15 years, the amount of building materials consumed per capita of the population of the city is very high, probably the highest in the state of Ohio and that would exceed the average of any city of equal population throughout the country, yet all of this business has been done at practically no profit to the dealer. They have not even made such a profit as would be demanded by an ordinary teaming firm operating without any warehouse or stock of goods.

Several years ago one of our representatives visited the dealers at Columbus and attempted to form a local organization for the purpose of districting the city into circles for the purpose of establishing a hauling rate commensurate with the distance from the warehouse or the unloading track, so that at least full teaming charges could be secured for the materials delivered in Columbus. But all efforts of this kind fell through owing to a lack of recognition of the co-operative spirit amongst the dealers. There has been a little war amongst the dealers at Columbus just as fierce as the big one now going on in Europe and the same conditions are liable to be repeated from time to time largely due to the particular advantages of freight delivery enjoyed by reason of the location of the city. In this way its transportation advantages are a disadvantage to the dealers of Columbus. Even when the manufacturers of material attempt to engineer the operations it is only the signal for others to force the issue by establishing agencies to compete without profits.

It is a very regrettable condition and one which can only be remedied by the dealers charging a reasonable margin for maintenance and overhead, and securing the co-operation of the manufacturing interests to prevent the forcing of the situation beyond the limitations of the community.

## One Propitious Feature for Business Next Spring

The disturbed conditions of the security market of the world at large and of our own country, along with all the rest, amount to a feature at the present time which may or may not be guided into channels that will be mutually beneficial to the investor and incidentally to the building material interests, including both the producer and the retailer. Vast sums of money, for the most part representative of the net increase of the country's wealth, have been for years going largely into railroad securities and other public utilities, as well as some of the largest private institutions. The railroads particularly during the past year have demonstrated their insincerity with the investors in their securities, and war demands abroad have brought about more or less permanent dissatisfaction with many other types of securities.

While there are delays and other kinds of business inconvenience brought about by upheavals of credit abroad, such things cannot affect us materially in the final balancing of the accounts. Our wheat crop is bringing a big price and all of the other food stuffs will measure out the same degree of prosperity as if it came in conventional form, instead of upon a little different basis of credit and collection. The cotton is always good as just so much stored up gold, because there is no over supply in any part of the world of either the staple or manufactured cotton goods.

In the practical sense, a wholesale storage of cotton amounts to even better security than the hoarding of gold, for the reason that the ultimate consumer has no use whatever for gold, while every human being, wherever located on this planet, from pole to pole, is irretrievably a constant consumer of cotton. From the cradle to the grave every human being is swathed in cotton, sleeping or waking through every day of his life.

Thus in the end of the calculation, the net increase of wealth will be just the same in spite of all financial disturbances, although the profits may be deflected into other hands than those they would fall into in the ordinary course of events.

A very large proportion of this vast sum of money, representing the net increase of wealth of the country, will doubtless find its way into building investments, for the reason that such investments yield fair profit when the materials are bought and the work is conducted under proper conditions. Such proper conditions exist, generally speaking, throughout the country.

If the people interested in building material and building construction are reasonably enterprising during the coming winter and early spring in the matter of letting people with money know the solidity of building investments, this percentage of the whole sum to be invested in building can easily be considerably increased. Probably there is not one of our readers who could not by his own personal use of suggestive conversation be the first cause of deflecting several thousands of dollars to be invested in the building business.

By all means it is up to those who undertake systematically to boost the building business to shape their conversation so as to advocate all future investments into strictly fireproof construction; because it is the only safe and permanent way to conserve the investment and make it permanent. Fireproof construction need not and actually does not cost any more even in the first outlay than inflammable fire traps which have been universally permitted to be constructed in all past time. One has only to make a tour of the great factory districts of New England for example to observe the cause of such catastrophes as the recent Salem fire, which started in a wooden factory building, which was no more than a shed, and the wiping out of millions of dollars worth of property was the result. Fully 80 per cent of the construction destroyed by fire in the Salem conflagration were buildings composed entirely of wood. Some of them were very expensive and elaborate residences, and eye witnesses state that some of these crumbled in the intense heat of the conflagration almost like

(Continued on Page 49.)

## Declare Present Conditions Satisfactory.

Wm. H. Merrill, general manager of the Wilson Sand & Supply Co., Alum Creek, W. Va., referring to business conditions, writes: "Our experience is that business is in much better condition than the various newspaper reports would indicate. Our shipments of sand and gravel have steadily increased since the month of June and orders for future shipments continue to pour in on us steadily. We are having many inquiries from smaller users.

"The business men of this territory are very optimistic regarding future conditions and are preparing to take full advantage of the rush of business which will come to us as a result of the European war."

E. O. McDonnell, president and treasurer of the Independent Lime & Cement Co., St. Louis, Mo., writes very encouragingly of the situation there in the following words: "Conditions with us have been very favorable for the year, so far. We would need to be superlatively optimistic to say the balance of the year will be as good. We have enjoyed our share of the business of the city. The outlying districts have been fairly busy in the building line and the expansion of the city westward has been remarkable.

"We look for a very good spring and we feel that conditions in St. Louis will be beneficial to all of the dealers."

James B. Macneal of James B. Macneal & Co., manufacturers of "Calvert" mortar colors, Baltimore, Md., says: "From orders and inquiries for our 'Calvert' mortar colors received in the last few months, we are satisfied with present conditions, and are optimistic for future business.

"Having lost our works by fire last April we have built a much larger plant, believing the demand for 'Calvert' colors will increase very much, and do not think we shall be disappointed.

"There is, however, no denying that war conditions in Europe have affected the financial situation, and manufacturers, who depend on the export trade to take care of part of their products, have had to curtail their outputs so it is natural for all those thus situated to be more or less pessimistic; but in due course the country will adjust itself, and new markets will be found for products which at present cannot be disposed of."

# BUILDERS' SPECIALTIES

## Profitable and Self-Selling Specialties

### Metal Building Supplies Require Little Argument—Easily Sold When Convenience and Economy Are Demonstrated.

One of the many advantages of handling building specialties is that they are easily sold. Especially is this true of metal specialties. Practically the only requirement in connection with the disposal of these materials to the contractor or builder is their presentation. We cannot expect a demand for materials that have never been properly presented. Regardless of the value of the article and the possible economy to the ultimate consumer through its use, it requires more than just the manufacture of such material to put it in universal use. But the additional requirement consists largely of its introduction.

A specialty salesman equipped with a complete knowledge of the uses and abuses of the materials he desired to sell, together with an intelligent method of presentation, can do wonders for the building material dealer with such goods as metal lath, metal corner beads, wall ties, metal studs, wall furring, and other metal specialties.

**Metal Corner Bead Opens New Field.**

The metal corner bead has opened up a field for the specialty department of building material dealers in that it has become at once a time and money saver. In rooms where corners project, there is always a good deal of annoyance when the projecting corners have been plastered without refinement. In practically every instance where additional safety has not been secured, the plaster cracks away from the main body of the wall and breaks off, leaving the lathing materials fully exposed and allowing the entrance of rats and other vermin, besides giving the room an ugly appearance.

In instances where the room has been papered, the cracks appear through the paper. In order to keep these corners in good condition, it is necessary to constantly patch the plaster and renew the decorations. Through the assistance of a practical metal corner bead, this trouble and expense may be annihilated. The metal corner bead does not represent an expense, for it is not. Through its use the amount of plaster required is materially reduced and a saving effected.

This might be termed "economy in the use of plaster." It is a strong talking point and will appeal to the ultimate consumer, while the profits on metal corner beads will not only offset the small amount lost on the unsold plaster, but will prove to be far greater.

The objection a great many building material dealers use in arguing against specialties is the attitude assumed by contractors, which is usually a negative one. But in the case of metal corner beads, this attitude entirely disappears and contractors become enthusiastic because of their practicability. The contractor is always anxious to save as much as possible on labor, and consequently approves the metal corner bead because of the economy possible through its use. It takes a great deal more time to plaster a porjecting corner under the old system than it does with the aid of metal corner beads. Time is money; and no one realizes this more than the building contractor.

There are instances when it is absolutely necessary to use a corner bead, such as plastering over brick or terra cotta walls. By using the metal corner bead with the special clips or wire ties, the difficulty of getting a perfect and substantial edge disappears.

Another point in favor of metal corner beads is the manner in which they are perforated. In all of the illustrations presented herewith the holes in the corner beads are plainly visible and at a glance it will be noticed what a perfect key the bead forms for the plaster. Through the use of staggard holes this key is made perfect. The plaster backs up from the underside of the metal and forms a splendid clinch. There is, therefore, no waste of plaster. In placing the holes in metal corner beads it has been advisable to locate them near the outer edge, bonding the plaster where it is most needed.

In illustrating the uses of metal corner beads in this article, reproductions have been taken from the catalog of the Penn Metal Co., 200 Devonshire street, Boston, Mass. Their particular make of metal corner bead is known as the "Penco." In speaking of their own product, the Penn Metal Co. says:

"Penco metal corner beads preserve the corners intact and in perfect condition. They not only protect corners, but they also act as reinforcement to the plaster itself. They are an evidence of up-to-date construction and a factor in quick and profitable renting. They have been a pronounced success from the standpoint of both contractors and owners and are endorsed by the leading authorities."

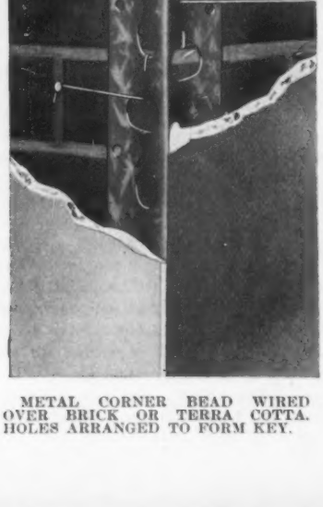
Commenting on the psychological effect of the use of "Penco" metal corner beads, this company says laconically: "They help to keep tenants happy."

Metal corner bead manufacturers desire to sell their metal building specialties to building material dealers and to aid in the sale of such specialties have adopted campaigns of co-operation and publicity which should appeal to the building material industry.

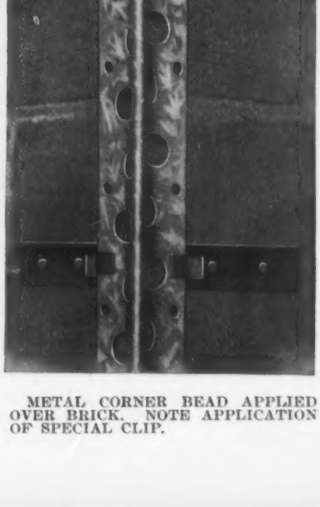
## Los Angeles Dealers Meet.

The eleventh annual meeting of the Los Angeles, Cal., Material Dealers' Credit Association was held recently at the banquet room of the Hollenbeck Cafe in that city. The following directors were elected to serve during the ensuing year: Fred E. Golding, of the Patten & Davies Co.; Robert F. Bostwick, of the Union Iron Works; L. L. Smith, of the Sunset Lime Co.; Charles C. Buffett, Jr., of the California Planing Mill & Lumber Co.; H. B. Howeth, of the Simons Brick Co.; Herbert C. Stone, of the Pacific Rock & Gravel Co., and others.

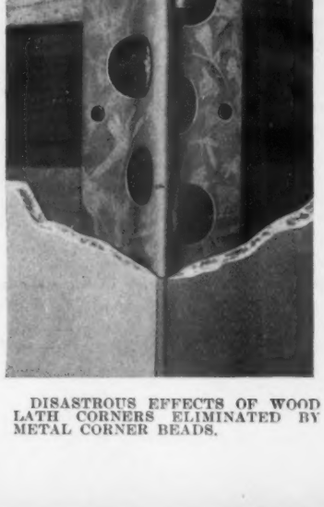
**The connecting link between factory and delivery of goods to the consumer is the salesman and the trade paper. When they jointly get behind anything and intelligently and persistently push it, it's a success. The prosperity of the salesman and the trade paper, then, depends on CO-OPERATION. "Barkis is willin'."**



METAL CORNER BEAD WIRED OVER BRICK OR TERRA COTTA. HOLES ARRANGED TO FORM KEY.



METAL CORNER BEAD APPLIED OVER BRICK. NOTE APPLICATION OF SPECIAL CLIP.



DISASTROUS EFFECTS OF WOOD LATH CORNERS ELIMINATED BY METAL CORNER BEADS.

METAL CORNER BEADS AND WIRE LATH FORM IDEAL PLASTERING FOUNDATIONS.

# NEWS of the TRADE

## General Conditions.

Building construction in the United States for September shows a decrease of 35 per cent. Permits were taken out in 79 leading cities in September for the construction of 17,301 buildings involving a total expenditure of $43,377,847, according to official reports to Construction News, as against 21,543 buildings involving $66,726,944, a decrease of 4,242 buildings and $23,349,097 or 35 per cent. There were gains in 19 cities and decreases in 59 cities. The figures in detail are as follows:

| Cities. | 1914 No. of Bldgs. | 1914 Estimated Cost. | 1913 No. of Bldgs. | 1913 Estimated Cost. | % Gain. | % Loss. |
|---|---|---|---|---|---|---|
| New York (Boros Man. and Bronx) | 867 | $ 6,348,551 | 443 | $ 6,320,496 | .. | .. |
| Chicago | 709 | 4,925,900 | 930 | 7,858,920 | .. | 37 |
| Brooklyn | 897 | 2,532,390 | 935 | 2,405,710 | 46 | .. |
| St. Paul | 197 | 2,811,936 | 211 | 910,908 | 208 | .. |
| Boston and vicinity | 341 | 2,604,000 | 456 | 5,237,000 | .. | 50 |
| Cleveland | 1,078 | 2,132,970 | 1,065 | 1,949,545 | 14 | .. |
| Philadelphia | 1,208 | 1,811,305 | 1,502 | 4,263,955 | .. | 58 |
| Detroit | 556 | 1,547,235 | 856 | 2,056,855 | .. | 24 |
| Los Angeles | 779 | 1,106,064 | 1,387 | 1,748,635 | .. | 36 |
| Minneapolis | 481 | 881,375 | 606 | 1,449,650 | .. | 39 |
| Pittsburgh | 393 | 880,649 | 236 | 1,434,790 | .. | 38 |
| San Francisco | 524 | 830,081 | 386 | 2,273,743 | .. | 63 |
| Buffalo | 316 | 761,000 | 296 | 821,000 | 7 | .. |
| Rochester | 258 | 666,554 | 279 | 843,236 | .. | 21 |
| Cincinnati | 1,200 | 665,508 | 923 | 868,576 | .. | 23 |
| St. Louis | 753 | 651,463 | 785 | 1,180,809 | .. | 45 |
| Kansas City, Mo. | 238 | 585,035 | 309 | 676,695 | .. | 16 |
| Seattle | 820 | 556,560 | 929 | 692,885 | .. | 19 |
| Columbus | 199 | 491,795 | 237 | 473,195 | 4 | .. |
| New Bedford | 80 | 462,325 | 126 | 510,742 | .. | 9 |
| New Haven | 431 | 431,610 | 94 | 243,880 | 77 | .. |
| Grand Rapids, Mich. | 159 | 427,624 | 159 | 1,573,350 | .. | 72 |
| Indianapolis | 466 | 411,428 | 551 | 675,504 | .. | 39 |
| Baltimore | 314 | 390,811 | 377 | 808,537 | .. | 51 |
| Toledo | 263 | 330,358 | 233 | 678,899 | .. | 46 |
| Bridgeport | 95 | 314,890 | 79 | 324,323 | 28 | .. |
| Oakland | 334 | 354,368 | 354 | 456,424 | .. | 22 |
| Scranton | 71 | 313,218 | 53 | 71,420 | 308 | .. |
| Omaha | 74 | 312,310 | 97 | 414,580 | .. | 25 |
| Portland, Ore. | 445 | 309,140 | 667 | 1,621,095 | .. | 8 |
| Akron | 133 | 286,375 | 226 | 339,645 | .. | 27 |
| Albany | 291 | 267,325 | 1,262 | 4,995,375 | .. | 95 |
| Cedar Rapids, Ia. | 42 | 264,000 | 42 | 258,000 | 2 | .. |
| Syracuse | 169 | 262,325 | 441 | 1,447,763 | .. | 82 |
| Worcester | 116 | 262,260 | 142 | 404,619 | .. | 35 |
| Springfield, Mass. | 122 | 255,016 | 108 | 233,025 | 9 | .. |
| Erie | 132 | 238,240 | 161 | 288,956 | .. | 17 |
| Newark | 154 | 231,660 | 206 | 501,536 | .. | 54 |
| Atlanta | 245 | 170,804 | 304 | 384,742 | .. | 55 |
| Birmingham | .... | 162,815 | .... | 242,099 | .. | 33 |
| New Orleans | .... | 159,277 | .... | 186,769 | .. | 14 |
| Bayonne | 17 | 158,766 | 23 | 46,950 | 235 | .. |
| Dallas | 74 | 140,269 | 165 | 469,925 | .. | 70 |
| Springfield, Ill. | 48 | 139,233 | 28 | 52,385 | 165 | .. |
| Richmond, Va. | 130 | 136,799 | 116 | 132,361 | 12 | .. |
| Peoria | 47 | 136,750 | 47 | 142,345 | .. | 4 |
| Pasadena | 135 | 134,954 | 179 | 140,303 | .. | 6 |
| Memphis | 163 | 132,160 | 273 | 288,355 | .. | 54 |
| San Diego | 177 | 131,541 | 264 | 352 660 | .. | 62 |
| Fort Wayne | 53 | 132,860 | 89 | 278,355 | .. | 52 |
| Davenport | 53 | 108,957 | 33 | 79,250 | 37 | .. |
| Savannah | 48 | 99,350 | 63 | 184,295 | .. | 46 |
| Berkeley | 71 | 94,500 | 87 | 144,000 | .. | 35 |
| Lincoln | 37 | 93,650 | 44 | 101,650 | .. | 7 |
| Tacoma | 133 | 86,826 | 194 | 157,848 | .. | 45 |
| Sioux City | 38 | 84,050 | 59 | 100,085 | .. | 16 |
| Wilkes-Barre | 118 | 84,030 | 53 | 133,053 | .. | 37 |
| Tampa | 128 | 80,550 | 126 | 53,055 | 52 | .. |
| Nashville | 56 | 77,505 | 39 | 49,390 | 57 | .. |
| Chattanooga | 217 | 77,387 | 187 | 50,120 | 54 | .. |
| East St. Louis | 41 | 74,515 | 68 | 134,673 | .. | 45 |
| Paterson | 78 | 72,788 | 49 | 54,215 | 34 | .. |
| Elizabeth | 27 | 72,309 | 52 | 182,000 | .. | 60 |
| Troy | 69 | 71,104 | 301 | 1,353,950 | .. | 90 |
| Altoona | 57 | 68,531 | 74 | 74,551 | 16 | .. |
| Lawrence | 15 | 58,250 | 15 | 64,600 | .. | 9 |
| Brockton | 29 | 57,514 | 50 | 63,245 | .. | 9 |
| Reading | 48 | 47,150 | 27 | 69,025 | .. | 31 |
| Dayton | 55 | 48,785 | 108 | 107,955 | .. | 60 |
| South Bend | 36 | 42,100 | 41 | 60,026 | .. | 33 |
| Topeka | 37 | 41,525 | 41 | 115,005 | .. | 63 |
| Spokane | 66 | 40,690 | 79 | 678,715 | .. | 94 |
| Colorado Springs | 31 | 38,925 | 38 | 38,405 | .. | 24 |
| Charlotte, N. C. | 14 | 38,000 | 95 | 292,937 | .. | 90 |
| San Jose | 53 | 37,148 | 26 | 37,373 | .. | 21 |
| St. Joseph | 65 | 36,172 | 55 | 77,120 | .. | 66 |
| Portland, Me. | 22 | 25,020 | 32 | 179,000 | .. | 86 |
| Passaic | 21 | 20 860 | 38 | 51,970 | .. | 51 |
| Hoboken | 16 | 15,892 | 16 | 25,665 | .. | 37 |
| Totals | 17,301 | $43,377,847 | 21,543 | $66,726,944 | .. | 35 |

This is the most significant decrease in a long time, and believed to be a result of the war in Europe; it is thought for this reason that the falling off may be of brief duration. There are some gratifying features of the report, notably improvement in building construction in New York City. New York City has been showing large decreases for a long time and the fact that there was no falling off during the month just passed is an indication of a more satisfactory condition in that city. Building in Brooklyn is extremely active with a gain of 46 per cent; St. Paul had a gain of 208; Cleveland, 14; Buffalo, 7; Columbus, 4; New Haven, 77; Bridgeport, 28; Scranton, 308; Cedar Rapids, Iowa, 2; Springfield, Mass., 9; Bayonne, N. J., 225; Springfield, Ill., 165; Richmond, Va., 12; Davenport, 37; Tampa, 52; Nashville, 57; Chattanooga, 54; Paterson, 34; Altoona, 16.

Chicago, which led the list of large cities with an increase in August, shows a decrease of 37 per cent in September. Other cities in which there was a falling off include Boston, 50 per cent; Philadelphia, 58; Detroit, 24; Los Angeles, 36; Minneapolis, 39; Pittsburgh, 38; San Francisco, 63; Rochester, 21; Cincinnati, 23; St. Louis, 45; Kansas City, 16; Seattle, 19; New Bedford, 9; Grand Rapids, Mich., 72; Indianapolis, 39; Baltimore, 51; Toledo, 46; Oakland, Cal., 27; Omaha, 25; Portland, Ore., 81; Akron, 27; Albany, 95; Syracuse, 82; Worcester, 35; Erie, 17; Newark, 58; Atlanta, 55; Birmingham, 33; New Orleans, 14; Dallas, 70; Peoria, 4; Pasadena, 4; Memphis, 54; San Diego, 62; Fort Wayne, 56; Savannah, 46; Berkeley, Cal., 35; Lincoln, 7; Tacoma, 45; Sioux City, 16; Wilkes Barre, 37; East St. Louis, 40; Elizabeth, 60; Troy, 90; Lawrence, 9; Brockton, 9; Reading, 31; Dayton, 60; South Bend, 33; Topeka, 63; Spokane, 94; Colorado Springs, 24; Charlotte, 90; San Jose, 21; St. Joseph, 66; Portland, Maine, 86; Passaic, 59; Hoboken, 37.

Affairs in this country seem to be adapting themselves to the war, and it would not be surprising to see probably a material revival in construction within a very short time. There is no doubt that the interest rates will soon be much lower and this will have a material influence on building construction.

## The Cement Show Points to Better Business.

Various exhibitors at the Eighth Chicago Cement Show, Feb. 10-17, 1915, report unusual interest among architects, engineers, contractors and building material dealers at the coming exhibition. Thousands of builders, particularly within the one-night radius of Chicago, have signified their intention of attending the show to representatives of the cement and concrete machinery manufacturers. Numerous exhibitors report that the interest in the show is keen in New York, New England, in states west of the Mississippi, in the South and even in Canada.

Everything points to a successful show. The character of exhibits is wider in scope than ever before. Undoubtedly, no other exhibition will ever bring under one roof so many of the standard machines of the industry. This fact, and the fact that builders are evincing greater interest in the show than ever before, lead to a search for the cause of such a condition.

The cement industry within the last few weeks has not experienced the depression observed in some other industries. The present light stock of cement throughout the country means that early in the spring the manufacturers of cement will be kept busy supplying the demand. The general reduction in prevailing rates of interest will enable the large borrowing interests to prosecute their work vigorously. The slight lull in municipal work during the past season is commonly regarded as a mere postponement of work from this year until next. Thus, if the cement show may be taken as a criterion, the general hesitancy about building during a time of depression is about to pass.

## Weather Helps Pittsburgh Business.

Pittsburgh, Pa., Oct. 20.—The builders' supply men in this city are feeling much better on an average than the ordinary man in business. There has been a very fair market for building sand. Much fall building has been started owing to the fine weather and this has helped out the fall trade a great deal. In those lines which are dependent chiefly upon the prosperity in the steel manufacturing plants, there is very little doing at present. On the other hand there is likely to be a first-class business in glass sand this fall owing to the European war and to the fact that glass concerns have agreed upon a wage scale. The totals for the year in all lines of builders' supplies will probably not be so large as in 1913. At least this is the opinion of city dealers.

There is no question but that if the war had not occurred we would have had splendid business this fall in this district and even now most jobbers predict that by the first of the year demand will force a very good trade in most lines.

Keller Brothers, of the East End, are fairly busy. They say that they are getting a good trade in general builders' supplies, most of it being for repair jobs and cement work. There is comparatively little new building, and street work is very slow. This firm has a big yard in the East End and also a yard at Edgewood, and the latter has been doing the best business by far in its history.

The Pittsburgh Industrial Development Commission has secured another big plant for the Pittsburgh district which will be erected at Carnegie, Pa., on a 10-acre site. It will employ 1,000 men and the main building will be 700 feet long.

Carl VanderVoort, of the Pittsburgh Lumbermen's Mutual Fire Insurance Co., reports that his concern is doing a fine business this fall among the retailers, and that retail lumbermen outside the city are in general feeling pretty good.

The Pittsburgh Lumbermen's Club held a splendid meeting and dinner at the Fort Pitt Hotel on Oct. 6, at which more than forty members were present. The chief speaker of the evening was S. P. Collins, an auditor of this city, whose subject was "Costs." C. E. Breitweiser was chairman of the meeting.

The board of directors of the Retail Lumber Dealers' Association of Pennsylvania held their quarterly meeting at the Henry Hotel, in this city, Oct. 6. President Frank G. Lillo, of Oakdale, Pa., and Director R. S. Cornelius, of Butler, Pa., made stirring talks. Monthly meetings will be held at different points in Western Pennsylvania, with the next meeting at Altoona, Pa., late in October or early in November.

The South Hills Builders' Supply Co. is a new concern in Pittsburgh, organized by W. F. and H. Justin Brown and R. F. Sawyer, of this city. It will handle a full line of lumber and builders' supplies.

The Mahoning Lumber Co. is a new retail concern at Kittanning, Pa., which has been organized by H. G. Gates, C. H. James and W. W. Stewart, of that place.

A meeting of the bondholders of the Allnite Coal & Lumber Co., a subsidiary of the Pittsburgh-Buffalo Co., of this city, was held in Pittsburgh Oct. 6, at which a favorable report was made concerning the property of the company located in Kentucky. The authorized issue of bonds is $500,000, of which only $260,000 are outstanding.

## Chicago Residence Prospects Bright.

**Retailers Report Present Market Dull, but Remain Optimistic.**

There are two or three facts in connection with the present situation that predicate important developments in the building industry in the near future. Probably the most important and most interesting at the present time is the large sales of vacant lots in outlying sections of Chicago in every direction. The sales have been upon a phenomenal scale. The sales indicate a revival of the feeling upon the part of people that they should have their own homes instead of being longer willing to pay rent to landlords. It is impossible to compute with any degree of accuracy the number of lots sold, but they run far into the thousands, and the fact that the bulk of them are within convenient reach of transportation would indicate that the next few years will see in the localities in which these lots are located much activity in building. Many lots have been purchased for speculative purposes and also for the other reason that it is a convenient place to put and to save money which otherwise would not be saved. A large number of these lots and tracts were purchased with a view to their immediate improvement. This is not only encouraging news to manufacturers and dealers in building materials, but should be of great interest to architects and builders, as it is in these sections that all must look for the next great home-building movement.

Chicago meat packers report that conditions in the stock yards are rapidly improving and that a large number of employes recently laid off have been rehired. The European demands for meat are to be credited for this condition, say the packers.

Diamond Fuel & Supply Co., Chicago, has been incorporated with a capital of $1,000 to conduct a general wholesale and retail coal business. They will also handle building materials. Adam Lauth is one of the incorporators.

Bosley Bros., Chicago, have been incorporated with a capital of $2,500 to deal in building materials.

R. E. Bear, sales manager of the United States Gypsum Co., reports that business is dull. The work now under way is the result of the many structures put up during the summer months and now being completed. In most of these buildings, plasterers are now busy. There is little new work in sight, according to Mr. Bear.

John A. Connelly, of the firm of Thomas Connelly, specialists in sewer pipe and natural cement, states that business with his firm has been very good. "We have been kept quite busy," said Mr. Connelly, "and are still being rushed. Business is good."

John P. Ryan, vice-president and manager of the Chicago yards of the Waukesha Lime and Stone Co., reports that there is a good demand for supplies among builders and contractors of the northwest side. "We have no complaint to make," said Mr. Ryan. "We are keeping our teams busy every day."

One of the yards of this company is on the Bloomingdale branch of the C., M. & St. P. R. R., whose tracks are now being elevated. This naturally causes a great deal of annoyance and extra work for Mr. Ryan and his employes, but in no way does he permit this inconvenience to his firm to interfere with prompt deliveries of material. When the track elevation is completed, the Waukesha Lime and Stone Co. will undoubtedly find it necessary to either make extensive alterations or to raze and rebuild its warehouse.

## Lesson in Fire Prevention.

A lesson in the construction of buildings with the idea of safety from fire was given to 25,000 persons on Chicago's lake front on Oct. 9. It was part of the Chicago celebration of "fire prevention day" on the anniversary of the starting of the big fire of 1871, and was staged by Frank D. Chase, architect.

Two buildings, one of brick and the other of frame construction, had been erected. They were filled with straw and saturated with kerosene. At a given signal a match was touched to each building.

The frame building burst into flames and was almost totally destroyed before the arrival of the fire department, which was stationed a half mile distant. The brick building merely smoldered and the fire was extinguished before the walls or even the partitions had been badly damaged.

Between the buildings was an immense sign reading: "Extend the fire limits." It was placed there to arouse public sentiment in favor of the ordinance now pending in the city council for the extension of the fire limits in which frame buildings may be erected to include the city boundaries.

Fire automobiles bearing various signs were stationed at the fire. Some of the signs read, "Reduce the Fire Waste," "Don't Build to Burn," "The Majority of Fire Losses Are Preventable" and "400 Persons were Burned to Death in Illinois Last Year."

More or less preventable fire destruction in the United States amounts to $300,000,000 annually, according to F. R. Morgaridge, assistant state fire marshal. "According to the state's figures, Illinois' share of this loss is $10,000,000 a year," continued Mr. Morgaridge. "The nation's total is greater than the cost of running the postoffice department, the pensions total or the expense of the army and navy.

"This fire loss costs the American per capita 10 times more than it does a European, though we spend 10 times as much for apparatus and service. It costs the United States more to sustain its national ash heap in 10 years than was expended by the kaiser in putting the German forces on a war footing.

"There were about 400 deaths from fire in Illinois in 1913. Of these 56 were children playing with bonfires, 60 were women who lighted fires with kerosene, and 60 from gasoline explosions. We who have children have no idea whether the schools they attend are properly equipped against fire, and we let them patronize theaters without inquiring as to the safety of the structures.

"The real work of the state fire marshal's office is in the education of the people, not prosecutions or inspection. There are many persons in Illinois who set fires for profit as a cold, calculating business proposition, yet this idea was derided three years ago."


PANORAMIC VIEW OF THE IMMENSE CROWD ASSEMBLED ON CHICAGO'S LAKE FRONT TO WITNESS FIRE TEST ON FIRE-PREVENTION DAY. FRAME HOUSE (TO LEFT) WAS ENTIRELY RUINED; BRICK HOUSE (TO RIGHT) SUFFERED INTERIOR WOODWORK DESTRUCTION.

## Western Business Sky Clearing.

Kansas City, Mo., Oct. 20.—The building situation has not entirely cleared in Kansas City and the Western part of the country, but it is looking very much better. In Kansas City, there has been a noticeable increase in the number of real estate transfers and building permits; and while no large work is coming to light yet, there is talk of several big buildings to be erected "early in the future." The newspapers and the business men are pounding the idea that it is in such periods of depression as this, when prices tend to fall, that the most brilliant opportunities arise for the laying of foundations for big fortunes.

The settling of the strike about the first of October did not result in any special spurt of building operations in Kansas City. The trouble has been that the money could not be secured from the banks. People whose credit was good could not get advances, and securities that looked all right for the backing of building loans three months ago are of no value now. This applies both to contractors and to the property owners who want to build. This week a meeting of retail building material men was held, at which the financial situation, and the attitude of the banks, was discussed. An effort will be made to learn more intimately the reasons for refusing loans on construction work, so that if possible the money for such purposes may resume its normal flow.

T. J. Coen, of the Coen Building Material Co., says that very little lime is being sold, and he concludes from this fact that there is little building going on. However, now since the labor disputes have been settled, and that the financial conditions are adjusting themselves, he looks for a spell of very good business.

## Louisville Presents Quiet Market.

Louisville, Ky., Oct. 20.—Unsettled business conditions and the condition of the cotton market have been reflected in the building trades of Louisville, and business at present is not what it should be. Louisville handles a big Southern trade normally, but under existing conditions in the cotton belt very little business is being done by the big manufacturing concerns and all lines are suffering to some extent. According to leaders in the building supply business, however, the trade has been hurt less than most other lines, and a feeling of optimism is prevalent at this time.

Building operations in Louisville for September of this year show a loss when compared with the corresponding month last season.

# Legal Department

CONDUCTED BY ELTON J. BUCKLEY

## Is This Restraint of Trade?

**Reader's Question as to Privilege of Manufacturer to Refuse to Sell Price-Cutting Retailers Elicits Interesting Reply.**

**Requests for information in this department should tersely set out in full all the facts bearing on the case and all questions should be carefully framed to avoid misconstruction. Write on one side of the sheet only. Letters should be received at the office of ROCK PRODUCTS AND BUILDING MATERIALS not later than the first and fifteenth of each month to insure an answer in the issue following. The signature and address of the writer must accompany all inquiries and will be published unless there is a request not to do so. ALL INQUIRIES RECEIVED WILL BE ANSWERED WITHOUT CHARGE.**

Here is an interesting case, referred to me from a reader in New York, with a request to use no names:

Binghamton, N. Y., Dec. 10, 1913.

Elton J. Buckley, Esq.

Dear Sir:—We would very much like you to throw some light on a business-legal problem which we are facing, not only for our own satisfaction, but for the satisfaction of your thousands of other readers who may be even now facing the same:

We sell a proprietary article which costs us $1.80 per dozen, buying same direct from the manufacturer. The article is not sold through the jobber exclusively, but the manufacturer will sell any one direct who buys in jobbing quantities. It has always been a custom in our business to sell articles costing $1.80 per dozen at 20 cents each, as it is a popular price and leaves us a fair profit. The manufacturer, however, has insisted in this particular case that we get a quarter, and we have had some warm correspondence together over the question. We decline to be owned by any manufacturer whose goods we sell, and as we are perfectly satisfied with a gross profit of 60 cents on our investment of $1.80, we saw no reason why we should be dictated to, and we therefore refused to sell the specialty in question at a quarter.

About two months ago the manufacturer in question notified us that unless we informed him by a certain date that we would stop what he called cutting the price, he would refuse to fill our further orders. I should say that most retailers do sell this article at 25 cents. We did not notify him, but sent in an order shortly after, which he declined. We were not seriously annoyed, as we depended on getting the goods elsewhere. It is a good seller with us. When we went out to buy the goods elsewhere, however, we found all channels closed. So far, we have offered ten houses an order for these goods, eight jobbers and two retailers with whom we are friendly. All have declined to sell us, saying frankly that they had been instructed not to by the manufacturer. I have addressed a letter to the attorney-general of the state and have also taken up the matter with our local district attorney, but they do not seem to think they can do anything. What I wish to ask you is, is this not restraint of trade? Here are ten houses willing and ready to trade with us on these goods, but they have been intimidated by the manufacturer. They do not sell us because they feel that if they do they too will be cut off. Is it possible that a business house must endure such treatment without being able to do anything to defend itself?

Respectfully yours,

A. & C.

My judgment is that this correspondent has no recourse whatever, and that he will have to get along without these goods unless he is willing to hold the manufacturer's price, or unless he can get somebody else to sell him. In everything described above, this manufacturer, in my opinion, was clearly within his rights. Let me see if I can make it clear why he is.

To begin with, he is a private and not a public concern. The legal status of the two, as regards selling customers, is quite different. A public service company, such as a telephone company, must sell everybody who will pay its rates and obey its rules. A private concern can do as it likes, and nobody can compel it to sell to him.

This manufacturer, therefore, need not have sold this correspondent at all. He could have cut him off without any reason whatever. It follows that he can sell him on condition that the goods shall be resold at a certain price. No court has ever questioned a manufacturer's right to do this; the cases which are probably in this correspondent's mind are all based on instances where manufacturers who sold to jobbers, who sold to retailers, have tried to interfere with the prices at which the retailers sold. The court held that as the manufacturers had no contract relation with retailers, they of course couldn't interfere with the retailers' prices. In the case I am discussing, the manufacturer is simply dictating to his own direct customer, which nobody can deny him the right to do. The retailer can take the goods or leave them, and if he takes them, it must be on the manufacturer's terms, which will always be strictly enforced.

Where a manufacturer says to a retailer, "I will sell you these goods at $1.80 per dozen provided you do not resell under $3," the retailer has just as much right to break the contract at one point, and refuse to pay more than $1.50 a dozen, as he has to break it at the other, and resell for $2.40.

It follows that the manufacturer, so far as his own dealings with this correspondent were concerned, was wholly within his rights when he cut him off for not maintaining the price. Was he equally within his rights when he compelled other people to refuse to sell him? I think he was, for the same reason, viz., that he could sell or refuse to sell those other people, just as he liked, and if he sold them he could do it on two conditions just as readily as one: First, that they themselves resell at the full price; and second, that they refuse to sell at all to people he might disapprove of. If they violated the agreement at either of those points, he could instantly cut them off, and not in a thousand years could they compel him to put them on again.

To get what the law considers conspiracy in restraint of trade, you must add something. If the manufacturer attempted to get other manufacturers to join him in a general boycott, either of this correspondent, or concerns that continued to sell this correspondent, you would have a different proposition.



# TRAFFIC NEWS

### NEBRASKA HEARING NOW ON.

The Nebraska state railway commission has commenced a hearing on the application of the Nebraska Portland Cement Co., of Superior, Neb., for commodity rates.

## Roads Renew Rate Raise Plea.

Washington, Oct. 20.—Urging that business depression and the war in Europe had caused a shrinkage of more than $76,000,000 in their annual net revenues, representatives of thirty-eight Eastern railroads, operating over 59,000 miles of transportation lines, appeared before the interstate commerce commission on October 19 asking that they be granted at least a 5 per cent increase in freight rates.

Daniel E. Willard, president of the Baltimore and Ohio Railroad, was the principal witness. He was supported by a mass of statistics presented by Vice President Shiver of the same line.

**Shippers Are Represented.**

In opposition to the plea of the carriers, Clifford Thorne appeared for the public service corporations of several middle Western and intermountain states and also for shippers' organizations in the region affected.

Louis Brandeis, counsel for the commission, vigorously assailed Mr. Willard's position in cross-examination, particularly calling attention to the fact that the Baltimore and Ohio Railroad had adhered this year to its policy of declaring 6 per cent dividends despite an actual deficit of more than $3,000,000 in its net revenues.

Mr. Brandeis declared the statement of the railroads had disclosed so far nothing originating since the commission's recent ruling, rejecting the Eastern lines' previous plea for a 5 per cent advance in rates. In reopening the case the commission specifically limited it to matters arising since that time.

Questioning Mr. Shiver, Mr. Brandeis drew out a statement that the ratio of operating expenses per mile had decreased in 1914 from the 1913 figure.

## Nazareth Plants Object to Rate.

The Public Service Commission at Harrisburg, Pa., recently heard a complaint about the rates charged to local points in Lehigh & Northampton counties from the plants located in the Nazareth, Pa., district. The plants in the Nazareth district claimed that the rates from their plants to Easton, Bethlehem and Allentown and intervening points were higher in proportion than the rates charged from the cement mills in New Jersey and the Coplay-Northampton district. The Lehigh Valley R. R., C. R. R. of N. J. and the D., L. & W. R. R., against whom the complaint was made, claimed that the shipments from the Nazareth district required a two-road haul as against a single line haul from most of the other plants.

The decision on the complaint has not as yet been rendered.

### SPOTTING CHARGE TEMPORARILY SUSPENDED.

The Interstate Commerce Commission has suspended until April 29, 1915, the proposed exaction by 49 railway systems and individual lines operating east of the Mississippi river, in what is known as the Official Classification Territory, of the charge of five and one-half cents a ton, with a minimum of $2.00 a car, "for switching freight to and from points located on private sidings and industrial plant tracks" commonly known as car spotting. The spotting car tariffs proposing the above charge for switching services were suspended by order of the commission until October 29, 1914, and are now further suspended six months more, presumably on account of the vigorous protests entered by shippers, who have enjoyed this free service for a quarter of a century, and many of whom having erected plants and constructed railroad sidings with the assurance that the service would be continued free. While no time has yet been fixed, hearings on the spotting tariffs will probably be held this winter.

# BUILDING PLANS

## Attractive Seven-Room Brick Residence

**Architect's Perspective and Floor Plans of a Fireproof Building Designed for a Fair-Sized Family.**

With the intention of giving our readers an illustration and floor plans of a modern and a most practical home for a fair-sized family, the architectural department of ROCK PRODUCTS AND BUILDING MATERIALS has designed this beautiful brick residence with slate roof. In the architect's perspective shown herewith the unique manner in which the porch is constructed and joined to the brick wall is clearly shown; in fact, the side walls of the house do not end at the beginning of the porch, but are built straight through to the end of the veranda. The window sills have been made of brick and the same material has been used in the construction of the arches in the open porch windows. The advantages of a home of this nature are especially attractive for northerners during the summer season, when the porch may be occupied. The porch, which is completely covered and partially walled, is constructed in such a way as to practically exclude the gaze of the passing pedestrian upon the occupants of the porch.

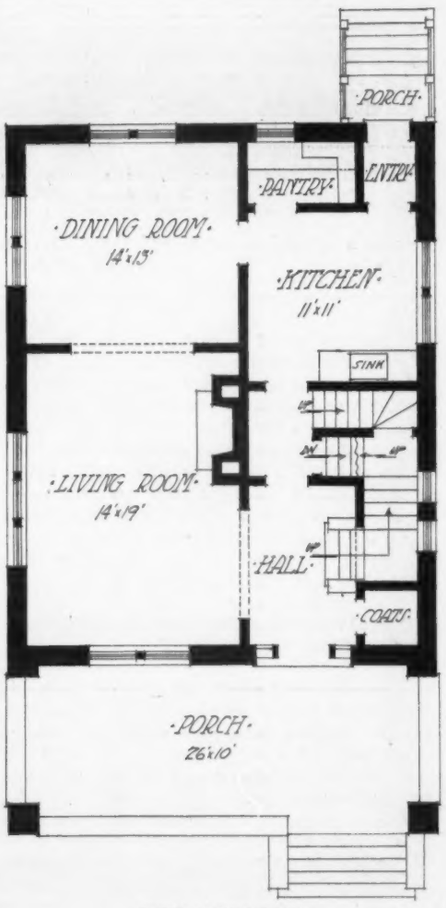
MODERN BRICK HOME FOR FAIR-SIZED FAMILY.

Entrance can be had from the porch directly into the living room as well as into the hall. French windows separate the porch from the living room. From the hallway entrance is had to the living room and kitchen as well as to the other floors. A particularly interesting feature of this design is the fact that there are two entrances to the one stairway leading to the second floor. This advantage permits the housewife or person working in the kitchen to slip upstairs unnoticed by persons in the living room. The kitchen is reached from the hallway and is separated from the dining room by a swinging door. A fair-sized pantry and the rear entrance occupy one side of the kitchen. On the other is the sink and the entrance to the hallway. The windows in the kitchen are placed close together so as to permit the greatest amount of light to enter that part of the kitchen which is most used.

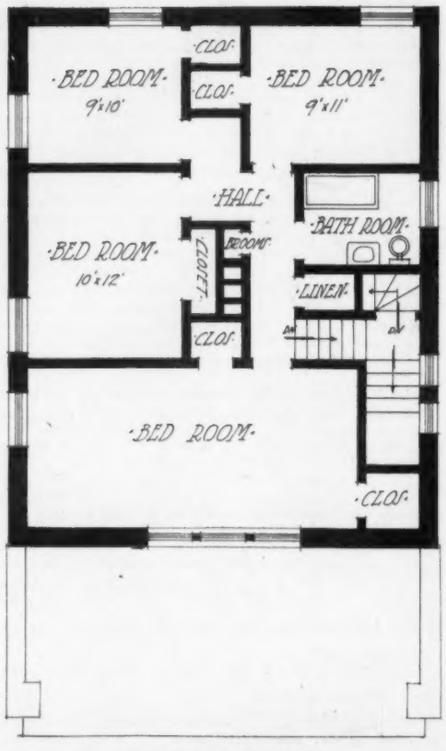
The living and dining rooms are separated by an open doorway, bookcases on either side forming part of the only barrier between the two rooms. The living room, which is exceptionally large, being 14 by 19 feet, has a good-sized fireplace and is well lighted from the French doors in the front as well as a triple set of windows in the side wall.

The second floor contains four bedrooms, a bathroom and a linen closet; three of these bedrooms are of the average size, while the fourth and front bedroom is exceptionally large. One especially good feature of the second floor is the fact that each bedroom has its private clothes closet. Finding a small available spot the architect has designed a room to be reserved for brooms, dust cloths, etc., thereby enabling these to be kept on the second floor and, except when in use, always out of sight.

This style of home is especially adapted for suburban residence districts. When constructed of any rough dark brick and surrounded by trees and shrubbery, it presents a most handsome appearance, and when provided with a brick fence in the rear, such as is shown to the left of the picture, it denotes a most desirable and prosperous owner.




FIRST FLOOR PLAN.




SECOND FLOOR PLAN.

### PAMPHLET ON ELECTRIC CRANE TROLLEY.

A pamphlet, illustrating and describing one of their popular electric traveling cranes, has recently been published by the Northern Engineering Works, Detroit, Mich., who say that "this trolley is the only one on the market made in large sizes which has the reduction gearing of the hoist enclosed in a rigid part of the trolley frame itself. In this respect it is a distinct novelty."

# N. B. S. A.

## Peculiar Advantages of Associations.

The many advantages possessed by an association such as the National Builders' Supply Association, all of which tends towards the general good of the building material trade in general, and to the members in particular, have oftimes been repeated in these columns.

It begins to appear, however, that the opportunities for good are innumerable and are constantly coming forward. The principal object and the feature of its work which has occupied a great deal of the attention of the asosciation during the past few months, or since Mr. Cormack has been at the helm, has been to educate the dealer to the need of co-operative effort, and it must be said here that these efforts have borne fruit and many examples now stand before us as a proof.

When the dealer, or in fact it seems to be the same in any line of business, is approached on this subject, he invariably at first fails to see that any direct good to him is to result, but the true worker never lets up and finally succeeds in impressing upon the "hunted" the reasons why co-operation is desirable.

In the last issue of ROCK PRODUCTS AND BUILDING MATERIALS there appeared an account of a meeting which was attended by the building material dealers of Chicago, at which Mr. Cormack, as president of the National Builders' Supply Association, delivered quite an instructive talk on the subject above referred to in all its phases. While at this gathering there was no concerted action looking towards any selfish gains to those who happened to be present, nevertheless it fortunately was the means of bringing the dealers together and assisting them to arrive at some general line of action on a subject which was bothering them all at the time, and for that matter still continues to do so, namely: the inability of the builder to negotiate loans, and the consequent lack of business in the material line.

This condition of affairs, of course, in the city of Chicago and elsewhere for that matter, is attributed to the war which is now going on in Europe, and there is no doubt but what that is the prime cause; but in view of the fact that many reports had been received from other cities containing the advice that apparently no change had taken place in the money market in those localities, especially as to its effect on building operations, the dealers of Chicago began to wonder if there was not some means whereby those affected in this city could not come together and have a general discussion on the subject, and find out, if possible, just where they stood and as to what effect it was going to have in the near future.

It so happened that the question was placed before Mr. Cormack and he assured them of his assistance in securing such a meeting as they desired. Right here we should stop and consider another very interesting phase in co-operative work. Chicago, like all large cities and a good many not so large, but just as progressive, has a civic body known as the Association of Commerce. This chamber covers every step of the business life in Chicago, and it is successful in doing so by distributing the work that is necessarily entailed through means of committees. All of the business is divided up into classes and the building material line is placed in a sub-division by itself. Co-incident it seems, Mr. Cormack is also chairman of that sub-committee of the Chamber of Commerce and consequently it was a comparatively easy matter for him to make all arrangements for the meeting. He saw to it that the leading bankers, real estate men, contractors and all others interested in the subject were invited to attend.

Regardless of whether the meeting was productive of good results as far as immediate returns are concerned, there is bound to accrue to the dealers of Chicago a great deal of benefit, and why? Simply because of the fact that they made a noise and let the business world know that they also were a part of it.

The whole point running throughout these few words is the advantages that attend the spirit of co-operation, without which, as we are all beginning to find out, very little can now be secured; and if it should happen that the dealers of Chicago are successful in their efforts to better conditions, it would mean a great boost for the policies being fostered by the N. B. S. A.

## N. B. S. A. Notes.

Application for membership has been received from the J. P. Duffy Co., Brooklyn, N. Y. This company gives promise of being one of the association's most ardent workers. Mr. Duffey has expressed himself as being heartily in favor of the plan to produce a universal "cost finding system" and looks forward to the day when it will be a reality. This part of the association's work has found favor with a greater portion of its members, as well as prospective members, and everything is being done to speed it up.

In taking a canvass of the business situation, most optimistic replies were received from Directors Kennedy in Pittsburgh, Voelkel in New Orleans and Allen of Lincoln, Neb. All report that they have no complaint to make regarding the attitude of the bankers, and less complaint about business.

## Indiana Retailers After More Members.

At a meeting of the executive committe of the Indiana Building Material Dealers' Association, held at Indianapolis, Oct. 7, it was decided that the officers of the association should hold meetings in various cities of the state with the view of boosting the membership in the state organization. It was also suggested that manufacturers having building material salesmen traveling through Indiana be asked to co-operate with the association in its membership campaign.

While nothing official was decided regarding the annual meeting it will no doubt be held at Indianapolis in conjunction with the Indiana Retail Lumber Dealers' Association in January.

## The Dealer in Brick.

The resident dealer is a growing factor in the brick business, especially in the handling of face brick. He is the man on the job, in a position to know what projects are under way and when decisions are to be made as to the kinds of brick to be used, and with the development of distinctive lines in face brick is becoming a much more important factor in retailing brick than in the past. Sometimes the dealer is a special representative of a line of brick and clay products. At other times he is a general retail dealer in building material, and in either case when handling face brick he can and should likewise handle all other clay products that may be used in his community.

One phase of this work that, perhaps, has not had as much attention as it might is that of the dealer handling and pushing paving brick. The wood block people are taking up with the idea that the resident retail dealer should be in a position to keep in closer touch with paving projects than anyone else and should be able to promote interest in paving material and to act as agent for the product. The same theory ought to hold good in the matter of brick, and with the growth of the resident dealer as a factor in the selling and distribution of brick, every phase of the business should be studied and experimented with. The chances are that the right kind of a resident retailer can help the business of brick street paving and road paving along considerably and thus benefit himself and the brick manufacturer as well as do a good turn for his community—The Clayworker.

**NATIONAL BUILDERS' SUPPLY ASSOCIATION.**
**Chamber of Commerce Bldg. Chicago, Ill.**

**Application for Membership.**

**The undersigned being heartily in accord with the "Constitution" and eligible to membership in the National Builders' Supply Association under requirements of Section I, Article 3 (ACTIVE), or in Section I, Article 4 (ASSOCIATE), does hereby apply for membership:**

**Firm name**.....

**Signed by**.....

**P. O. Address**.....

**Date**.....

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# CONCRETE

## The Bignell Concrete Pile

### Premoulded, Reinforced Concrete Piling Sunk Fifty or More Feet Actual Penetration Without Hammering.

Deep, easy penetration with a premoulded, reinforced concrete pile has at last been secured by the invention of Edward Bignell, now and for the last 25 years division superintendent of the Chicago, Burlington and Quincy Railroad at Lincoln, Neb. By this invention premoulded, reinforced concrete piling can be sunk 50 to 90 feet actual penetration without hammering in any kind of material that can be eroded by water under high pressure.

About 100 of these piling have been placed under a heavy railroad bridge in Nebraska across the Platte river. The material penetrated was sand, quicksand, gravel, cemented gravel and clay. All piling placed in this structure were premoulded, 50 feet long and 16 inches square. Each weighed slightly more than six tons. It did not take more than 25 minutes to sink any one of these piling its full length in the material mentioned, provided no rock or submerged timbers were encountered in the sinking. This extraordinarily deep penetration is secured by an artful combination and application of hydraulic methods, enabling the pile to sink to place by its own weight without being struck a single blow.

#### Description of Pile.

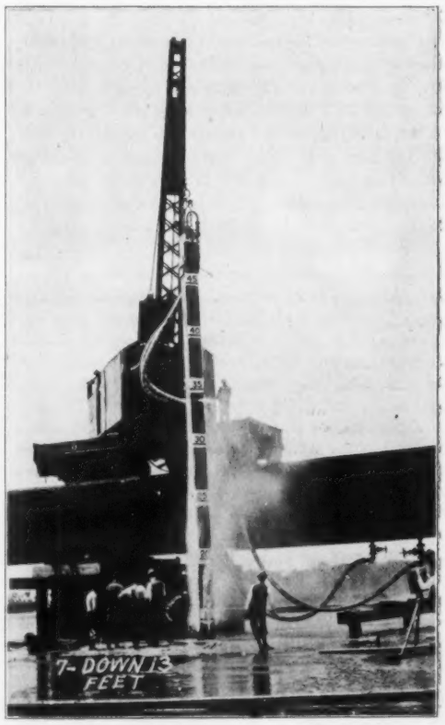
The pile is cast or moulded around a metal pipe, the diameter of which is determined by the size of the pile to be cast. In a 16-inch square pile this pipe is four inches in diameter; in a 12-inch pile it is three inches in diameter. This pipe is standard material and adds to the reinforcement. At the lower end of this pipe and at the lower end of the pile is a specially cast nozzle with an inside diameter of one to one and one-eighth inches, depending on the size of pile. This nozzle or reducer is screwed on to the lower end of this inside pipe with standard threads. The upper end of this pipe, at the upper end of the pile, is also threaded. When the pile has been moulded and dried and is ready for placement, a standard tee is screwed on to the upper end of the pipe extending through the piling and a pipe of the same dimensions as the central pipe is screwed into the side or end of this tee. Into or onto this pipe a line of hose carrying water is attached.

Then through the center of the pipe down the pile is inserted a smaller pipe half the dimension of the larger one. This smaller pipe has screwed on to its lower end a nozzle point turned down to fit exactly into the nozzle of the pile. This point has a groove around its circumference into which packing is inserted. This central pipe is adjusted to exact length so that the nozzle point fits exactly into the nozzle casting, and the upper end at the point of the tee is fitted with a beaded coupling on top of which a leather or rubber gasket is seated. A standard hexagonal nut is slipped down over or around this central pipe and is screwed into the upper end of the tee locking the central pipe and the nozzle point into place.

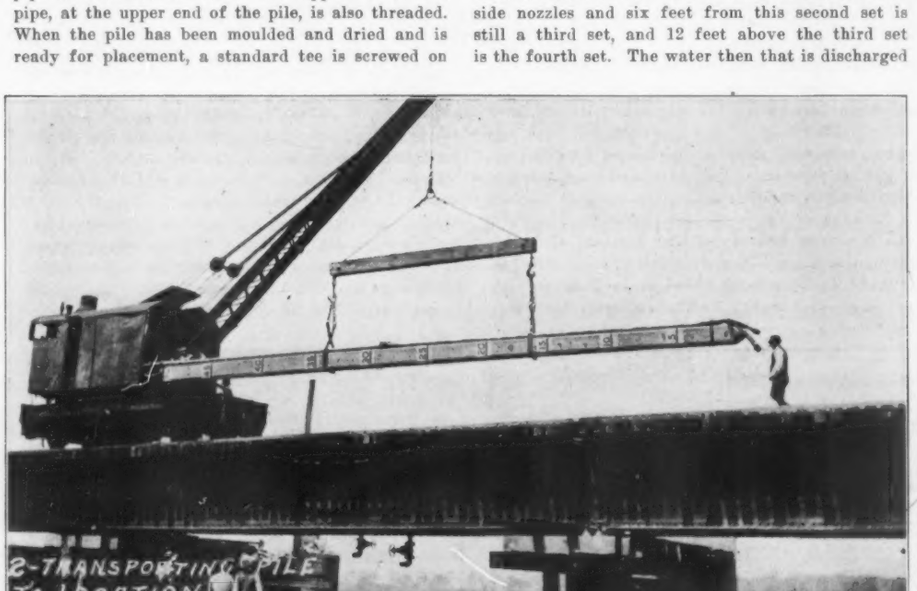
Onto or into the upper end of this central pipe a line of hose is also fitted. Two independent streams of water are thus fed down through the pile. The one going down through the center has a high pressure of about 200 pounds to the square inch with an approximate discharge of 600 gallons per minute. The stream of water through the other pipe is at a lower pressure and has an approximate discharge of 800 gallons per minute. The water through this pipe is stopped at the bottom of the pile and does not discharge at its lower end. It is stopped by the nozzle point with its packing, and comes back up and around the central pipe.

Eighteen inches from the nose of the pile are four pipes, two at right angles with the other two, each pipe leading to one face of the pile, and each fitted at its outer end with an upturned ell. Three feet from the first set of side nozzles is another set of side nozzles and six feet from this second set is still a third set, and 12 feet above the third set is the fourth set. The water then that is discharged down through the larger pipe is forced back up the pile and is forced out of the side jets and up along each side of the pile and, being under pressure, this water lifts all displaced material from one series of jets to another series of jets, and by this process actually lifts the displaced earth from one series to the next so that the pile, lubricated on all sides by water at equal pressure directed up the side of the pile and at sufficient pressure to lift the displaced material, sinks of its own weight to any depth required, in the absence of rock.

The moulding of the pile is a very simple matter. In casting the 16-inch-square, 50-foot-long piling, an inch-square reinforcing bar was placed in each corner, one and a half inches in from the face of the pile. Around these bars was placed a wall of woven wire with four-inch mesh. The central pipe, reinforcing bars and the wire netting were all wired together, and placed into a three sided wooden form. Into this form the concrete was poured and tamped and after about 48 hours the two planks which had been used as forms for two sides of the pile were collapsed, removed and used over and over again.




BIGNELL CONCRETE PILE DOWN 13 FEET. NOTE SIDE JETS FORCING WATER UP ALL SIDES OF PILE.




BIGNELL PREMOULDED REINFORCED CONCRETE PILE BEING TRANSPORTED TO LOCATION.

#### Equipment.

No extraordinary or unusual equipment is necessary for the manufacture or placement of this pile. Perhaps a majority of contractors accustomed to heavy bridge, river, harbor and water front work are supplied with the necessary equipment to manufacture and place these piling. A small derrick and hoisting engine are required at the material yards; small trucks or skids for transporting the material from the material yards to the point of placement; a large derrick of sufficient capacity and length of boom for raising and sinking the piling; and a good concrete mixer for manufacture and a pump with a capacity of 1,200 gallons per minute at 250 pounds pressure maximum and a 100 horsepower boiler; the necessary pipe, hose and fittings complete the equipment.

Concrete piling sunk according to this method may be made of any shape and dimension to suit the demand of the particular occasion. A sheet pile can be made and sunk as easily as a long

ENGLISH CONCRETE TEXTILE FACTORY AND CHIMNEY.

square pile. The only difference in application of the principle in sinking sheet piling and long square piling is in the distribution of water to the sides of the pile. A 16-inch square pile has but one set of side jets for each side, while a pile with a 24-inch face has two sets of side jets for each face. The central jet and its operation remain practically the same in all styles that may be manufactured.

Mr. Bignell has secured patents protecting his ideas in the United States and Canada and has organized the Bignell Piling Co., with headquarters at Lincoln, Neb., to conduct the business in connection with this pile. Its use is open to builders, contractors and engineers on equal terms throughout the United States and the Dominion of Canada. The company furnishes at its own expense an expert to advise with the contractor and show him how to make and place the product to best advantage. For this service and for the use of the ideas protected by the company's patents, a service fee of two and one-half cents per square foot of side surface per linear foot of piling is made. Full information with reference to the method of manufacture and cost of same, together with cost of placement, is furnished on request without charge.

## An English Concrete Factory and Chimney.

There are many factors which have been the means of revolutionizing the materials used in building construction in England so far as textile factories are concerned. The chief undoubtedly is the attention and consideration given by the various insurance companies during recent years to the resistance offered by ferro-concrete to the ravages of the flame. The oil and grease which are necessities for manufacturing textile goods often as not finds its way into timber floors, and they become thoroughly saturated with it, hence when a fire does occur there is little chance of saving the buildings.

Not only that mentioned, but in case of fire with iron girders, there is a grave danger of the external walls being pushed outwards by the expansion which takes place. Again, the amount of vibration in factories is tremendous, and it may be mentioned that this was the factor which brought about the many systems of patent glazing which are in the building material market today.

In the ordinary framed structures this vibration acts with marked effect; as often as not the machinery and shafting are attached to the members of the roof or flooring, causing the joints of the framework to work loose and an unstableness which is not beneficial to the building is brought about. Therefore, the great point in regard to factory construction especially is to find a material or a combined material which will resist satisfactorily fire and vibration, for the two mentioned are the greatest factors which act detrimental to the stableness of structures.

In England textile districts which are chiefly concentrated in the northern part of that country, viz., the counties or provinces of Lancashire and Yorkshire, concrete is being largely adopted for building purposes.

The illustrations published herewith show a huge factory built on the Hennebique system, at Bradford in York, along with a chimney of the same material. The factory stands in a prominent part of the city and practically was the first big building to be erected of concrete. The illustrations show the buildings in process of erection.

The octagonal chimney was also constructed in a unique fashion of concrete blocks. The latter were made in a cast iron box with a kind of swan-neck end, which gave the rounded projection at the corners of the chimney. These blocks were about 10 inches deep, and in the construction steel wire was carried up vertical at each of the rounded corners, also small cavities were left in the casting of the blocks into which cement was poured in forming one homogeneous mass. In building the chimney the work was done from the inside and the blocks pulled up to the work from the base.

## The Highest Concrete Structure in the World.

The Delaware, Lackawanna and Western Railroad, in its picturesque cut-off between Clark's Summit and Halstead, 20 miles from Scranton, Pa., is building one of the most remarkable con-

TUNKHANNOCK VIADUCT UNDER COURSE OF CONSTRUCTION.

crete structures in the world. It is a viaduct connecting one mountain with another at Nicholson, Pa. The length of the bridge is 2,350 feet. There are 10 arches reaching 242 feet into the air from the surface of the water of the creek in the valley across which the viaduct is being built. Each of these 10 spans is 180 feet in the clear between the immense piers which support them. There are two other spans which extend 100 feet in the clear.

The height and immensity of this piece of concrete engineering may be better appreciated by observing how small the dwelling houses look in the picture in comparison with the towering piers

VIEW OF CHIMNEY CONSTRUCTION; BUILT IN COURSES AND GROUTED WITH CEMENT.

MAKING THE COURSES FOR THE CHIMNEY IN A CAST-IRON BOX.

and arches above them. There will be 168,000 cubic yards of solid concrete in the completed work. Earth was excavated down to the solid rock; and from this deepest foundation to the top of the concrete work is 303 feet.

A general superintendent, 12 foremen and 220 men are engaged in the work. It was begun two years ago and will require at least a year yet for its completion. Two tracks will be laid over it, this being the main line of the D. L. and W. running from Stroudsburg to Binghamton. It is called the "Tunkhannock Viaduct," and is being built by Flickner and Bush, of New York City. The entire cost of the structure will be about $1,800,000. The cut-off from Clark's Summit to Halstead will shorten the road about three miles, and will do away with some very steep grades.

Immense derricks, some 300 feet high are built, one at each end and one about the middle of the structure. From these derricks immense collapsing buckets are sent out on powerful steel cables to be let down by ropes and pulleys wherever the building material may be needed. The great buckets of concrete are now emptied by an electrical contrivance. At the beginning, $10 an hour was offered the man who would ride out over the nearly 300-foot chasm and dump the concrete. It was found however, that no man could long endure the rebound of the cable carrying the concrete. This remarkable piece of concrete engineering will be a convincing test of what can be done on a great scale with this marvelous modern building material and is a striking example of the inherent value of concrete.

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Through the efforts of the Louisville (Ky.) Automobile Club an experimental concrete road is to be built on the Bardstown pike under the supervision of the fiscal court. This road will be one of the very first to be built in the state and a good deal of interest is being shown in the proposition. About 2,500 feet of roadway will be built at this time.

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The Olson Concrete Mixer Co., of Elkhorn, Wis., has completed the erection of its new plant and preparations are being made for the installation of considerable new equipment. It is hoped to have the plant in operation soon after November 1.

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D. X. Murphy & Brother, Louisville, Ky., have plans for the erection of new concrete buildings at the Bourbon Stock Yards, which will cost in the neighborhood of $160,000. A large fire a few weeks ago destroyed the sheep house and one of the cattle pens, and the management decided to build them fireproof this time. The main cattle sheds were destroyed by fire a few years ago, and were replaced with concrete. When this job is completed the Bourbon Stock Yards will be of concrete throughout and will be one of the most up-to-date stock yards in the middle West. The contracts will be let as soon as the plans are completed, and the work will probably be completed by April 1.

# CEMENT

### WESTERN STATES COMPANY TO KEEP PLANT RUNNING.

The stockholders of the Western States Portland Cement Co. met in Independence, Kan., a few days ago and received the statement made by the officers of the company for the past year. It was decided to keep the plant running for the winter. The stockholders elected the following board of directors for the next year and only made two changes: M. L. Alden, Kansas City, Kan.; C. E. Andrews, Boonville, Mo.; W. Bromelsick, Lawrence, Kan.; J. L. Bowdish, Wichita, Kan.; T. H. Dinsmore, New York City; A. J. Eisenmayer, Springfield, Mo.; B. F. Henry, Lamar, Colo.; M. G. Manley, Lawrence, Kan.; Thomas Page, Topeka, Kan.; A. C. Stich, Independence, Kan.; A. W. Shulthis, Independence, Kan.

The old officers were re-elected, as follows: President, A. W. Shulthis; vice-president, B. F. Henry; secretary and treasurer, A. C. Deer.

### ARGENTINA TAKES AMERICAN CEMENT.

American cement makers have broken into the South American market in vigorous fashion. An order for 47,000 barrels, or 8,500 tons, one of the largest ever given for export, has been received by the Atlas Portland Cement Co. from the Argentine government. Part of the contract has been filled and the cement is afloat on one of the transports that came north to man the cruiser built in this country. The rest of it is now being loaded on an English ship docked in the Hudson river.

Up to this time practically all of the cement used in Argentina for government work was supplied from England and Germany. The business now secured is due to the influence of the Argentine ambassador to this country, Senor Naon, and represents the efforts being made by government officials of South American countries to replace European with American goods.

### AGREEMENT REACHED.

The case of some half a dozen of stockholders against the Piedmont Portland Cement Co., Atlanta, Ga., asking a receiver for the company because of objections to the plan of reorganization adopted at the stockholders' meeting on May 15, has been settled by mutual agreement of all parties concerned, and J. H. Davis, C. H. Cosgrove and A. A. Camp were named receivers by mutual consent of the parties to the case. In the settlement of the case it was agreed and understood that the operations of the company will be continued as usual and all contracts will be filled in the usual manner.

### WHY IS "PORTLAND" CEMENT?

Many are interested in knowing what the word "Portland" stands for as applied to cement. "Portland" is merely a generic name—a name given to a certain class of cement because when Joseph Aspdin of Leeds, England, discovered the method of making this cement, the product had a "fancied though really slight resemblance to the noted oolitic limestone from the isle of Portland, on the south coast of England"; hence it seemed natural to give the name "Portland" cement to the new product that looked so much like Portland stone. There are now as many different brands of Portland cement as there are brands of flour, and there may be just as much difference among Portland cements as among the various grades of sole leather or oak timber.

The best grade of Portland cement has a tensile strength of from 700 to 800 pounds, while natural cement, the strongest mortar material known up to the discovery of Portland cement, reached only about 225 pounds. Moreover, concrete made of Portland cement continues for months, probably for years, to gain strength. Just how long it continues to gain strength is not definitely known, but it is sufficient to be assured that properly built concrete structures are practically imperishable. The concrete structures of ancient Egypt and Mexico are standing today well preserved.

International Portland Cement Co., Lakeview, Idaho, proposes expending $150,000 in the construction and installation of new machinery in its plant.

The Nebraska Portland cement plant at Superior has opened for business and is now running on full time. The output is close to 5,000 barrels per day, which has been contracted for several months ago. The Superior plant commenced grinding the cement rock several days ago, but not until this week has it been turning out the finished product. The raw material is secured from just over the state line in Kansas and hauled to the plant at Superior in cars owned by the company.

Cement authorities estimate the agricultural use of cement in this country 30 per cent to 35 per cent of the total. There are 6,000,000 farms and if they consumed an average of 15 barrels each they would absorb the entire output of Portland cement. It is estimated that the railroads are consuming only about five per cent of the total, as compared with their normal consumption of 12 per cent. It is believed there would be a boom in country road construction if the market for municipal bonds were normal.

The new Monarch Cement Co., Humboldt, Kan., reorganized from the ruins of the old company which went bankrupt about two years ago, has completed its first year with a good business and a fair profit, according to the statement made by a stockholder who attended a meeting of the stockholders at Humboldt, Kan., recently. All the directors and officers were reëlected. The plant has been running at about half its capacity, but the stockholders authorized the purchase of additional machinery to increase the daily output.

George S. McLanahan, manager of the Iola Portland Cement Co., Kansas City, Mo., is, in common with other material men, delighted with the way October opens up. "The first 18 days of September were wet and all kinds of work were practically stopped," he said. "The strike on the big buildings in process of construction also deterred operations. But we have bright, clear weather now, the strike is settled and supplies will go out steadily till the first of the year, when the weather will interfere, as usual. Our Iola plant has been working full time. The city work and the municipal improvements elsewhere are now in progress and, because the rain hampered operations so extensively recently, much has piled up. There will be plenty to do and no complaint to make."

### SANDUSKY COMPANY INCREASES EQUIPMENT.

Supt. W. E. Wuerth of the Sandusky Portland Cement Co., Dixon, Ill., stated recently that his company was making plans for an all-winter run at the full capacity. All of the large bins in the great storehouses will be filled. A contract was completed a few days ago for the purchase of a monster electric crane which will be used to convey this product to the storage piles. A large generator has also been ordered and this will be installed during the winter, greatly increasing the capacity of the power plant and furnishing plenty of power for the additional machinery.

### RECEIVER SOUGHT FOR GLOBE CONCERN.

Suit was filed against the Globe Cement Co. in the Clark circuit court, Jeffersonville, Ind., recently to declare the charter and articles of incorporation surrendered and forfeited, that the corporation be dissolved and that a receiver be appointed to wind up the affairs of the company. The action was under the title of the State of Indiana, ex rel., Warren B. Allison, prosecuting attorney of the fourth judicial circuit.

The complaint recites that the Atlas Cement Co. was incorporated under the laws of the state of Indiana, its name later being changed to the Globe Cement Co., February 6, 1897, the capital stock to be $50,000. The company purchased 100 acres of land and erected mills for the manufacture of hydraulic cement, the approximate cost of the improvements being $20,000. The industry was conducted until 1905, when the mills were closed and the plant was abandoned, the complaint recites. The machinery, it is alleged, was allowed to rust and the buildings decayed for want of attention.

Years ago the cement industry in Clark county, Ind., was flourishing. In 1901 about twenty mills formed a combination and pro-rated the manufacture among the several mills. The cement was sold through the Western Cement Co., of Louisville, Ky. The arrangement, however, was dissolved in 1907.

In 1905 there was considerable litigation involving the Globe cement mill and factions headed by Herman Preefer, of Jeffersonville, now of El Paso, Tex., and Dr. G. Oscar Erni, of New Albany, Ind., fought each other for nearly two years, the stake being the unearned profits on the sale of natural cement. The Preefer faction finally won. At that time there were several thousands of dollars on hand or due, it was asserted. The stockholders at that time included Herman Preefer, Mrs. Mary Preefer, Miss Lou Preefer, Miss Rosie Grosbach, Isadore Pierle, Andrew and Mrs. Koch, Dr. O. G. Erni and Mrs. Erni, John Richardson, Henry and Robert Bean and Mrs. Caroline Bean and Fred Loheide.

The plant was finally dismantled and the machinery was sold for scrap. The land, valued at $4,500, was leased for farming purposes. It is alleged the land is depreciating in value and is not bringing in enough to pay the taxes.

It is reported that a number of Cleveland business men are interested in establishing a cement plant at Arthur, Tenn., four miles from Middlesboro, Ky., on the other side of Cumberland Gap. It is further reported that some officials of the Southern railroad are interested in the proposition.

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

THE FRANCIS PUBLISHING CO.
537 S. Dearborn Street Chicago, Illinois

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## EMPLOYMENT WANTED

Twenty years' experience Supply Business, familiar with details of every department, might make investment. South or Southwest preferred, location immaterial however. References furnished. Who wants man this calibre? Address Box 1017, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position by sand-lime brick man of many years' experience. Thorough knowledge of manufacturing. Best of references. Address BOX 1012, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position to take charge of block and tile plant or construction work. W. B. De PUY, Plainwell, Mich.

## EMPLOYEES WANTED

WANTED—A builders' specialty salesman. One of the best cities in the middle west. Salary or commission, or both. An excellent opening for the right man. Must be experienced and able to produce results. Address Box 1014, care ROCK PRODUCTS AND BUILDING MATERIALS.

## BUSINESS OPPORTUNITIES

### GRAVEL LAND, 56 ACRES, FOR LEASE.

Located on Cincinnati Northern R. R., near Jackson, Mich., only available deposit for 100 miles south. Low frt. to rich farm lands of Paulding and other northern Ohio counties, where no native gravel is found. Pit run with boulders crushed to two inches will find ready sale. Electric power and water available. Great opportunity right man to start with small capital. Box 1018, care ROCK PRODUCTS AND BUILDING MATERIALS.

### AGRICULTURAL LIME AND CRUSHED STONE QUARRY FOR SALE.

A well-developed lime and crushed stone quarry in Eastern Tennessee, situated on the Southern Railway, of approximately 43 acres, is now offered for sale at a very attractive price on reasonable terms. A big market exists in the territory for agricultural lime. Modern road building is now going rapidly forward, which will make a good outlet for that product. Full information and details obtained by referring to file 47833 and writing M. V. Richards, Land and Industrial Agent, Room 371 Southern Railway, Washington, D. C.

### RETAIL BUSINESS FOR SALE

Profitable builders' supply and grain business located in large city of eastern New York offered to hustler at bargain. Present owner retiring. Address Box 1008, care ROCK PRODUCTS AND BUILDING MATERIALS.

## PLANTS FOR SALE

### FOR SALE—SAND AND STONE PLANT.

Fifty acres of land; on the surface is a layer of lime stone, beneath this is the very best silica sand eighty feet deep; a switch has been put in, a modern stone crushing plant erected, and we are now ready for the sand plant. The owner is seventy-two years old and would either sell the plant or an interest to a younger man to share in the management. H. L. HOSSACK, Ottawa, Ill.

FOR SALE—Fully equipped limestone property; kilns, crusher, screens, cars, drills, tools, pumps. Send postal for list and terms. Sale November 12th. Your opportunity for plant or equipment. Address W. S. SMALLEY, Assignee, Harrison Bldg., Philadelphia, Pa.

### FOR SALE—PORTLAND CEMENT PLANT

Complete 1,000-barrel dry process plant, fully equipped. Will sell any part to suit purchaser. M. BRAUDY & SONS, Grand Rapids, Mich.

## MACHINERY FOR SALE

FOR SALE—Best empty cement bag baler, smallest price. Also brick and block machines. Address W. BARTEN, Gordon, Nebr.

FOR SALE—One 30 h.p. type B heavy duty gasoline marine engine, Fairbanks-Morse make, first class condition. Disposing of it to put in 55 h.p. engine. Address KING'S CROWN PLASTER COMPANY, Cedar Rapids, Iowa.



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Advertising copy for issue of the 7th should be mailed us not later than the 25th of the month preceding.
Changes of copy for the 22nd issue should be mailed not later than the 10th of each month.
In complying with this request you will permit of ample time in which to have your ad set and receive proof for O. K., or corrections.

**The Francis Publishing Company - 537 So. Dearborn St., Chicago, Ill.**

# LIME

## The Potash Famine and the Way Out

BY JOHN J. PORTER, SECURITY CEMENT & LIME CO.

The world's supply of potash is obtained from Germany, and with this source of supply now cut off by the European war, there will inevitably be a famine of this material as soon as present stocks are exhausted. According to the Wall Street Journal, the price has already advanced from two cents to 15 cents per pound. Potash is essential to plant growth and is one of the three constituents of a complete fertilizer, the other two being phosphorus and nitrogen. Enormous quantities are used annually by the farmers of this country, and this famine bids fair to be a serious matter to our agricultural interests. There is, however, a way out available to the large proportion of farmers.

Almost all soils contain potash; most contain enough for all present plant requirements, while some contain large excess beyond these requirements. As a rule, however, the potash is in insoluble combinations which render it unavailable, or at least only very slowly available to plants. If the store of potash in the soil could be made available as needed, it would be many years before the average farmer would have to worry about the price of potash fertilizer and the source of his supply. Fortunately an agent is at hand to accomplish this result.

Lime, in addition to its valuable action in neutralizing soil acidity and supplying the needed calcium for plant growth, has the property of rendering soluble and available to plant life the store of inert potash in the soil. To a lesser extent it also renders more readily available the soil stores of phosphorus. The following quotations from some representative authorities will serve to establish these points:

E. H. Jenkins and E. M. East, Bulletin 163, Connecticut Agricultural Experiment Station: "The element calcium is a necessary constituent of plants; but as almost all soils contain it in sufficient amounts for their needs, the action of lime is not like that of a direct fertilizer. Indirectly, however, it is an agent by which insoluble potash is changed to a form available as plant food."

H. J. Patterson, Bulletin 110, Maryland Agricultural College: "Lime has not only the effect of aiding in the forming of unions of potash which will be held in the soil, but it also has the ability to liberate potash from combinations which are locked up and unavailable to plants. This is particularly marked when lime is applied to land containing fragments of feldspar."

W. B. Ellett, Bulletin 167, Virginia Agricultural Experiment Station: "Nearly all soils, especially clay soils, contain more or less of the plant food potash in an insoluble form, so that plants can not use it. Lime acts upon this insoluble potash, and liberates it, making it available for the growth of plants, or, as it might be put, 'palatable' to the plants. Most of the experiments conducted show that caustic lime will act quicker and better in making potash available, if that is the chief object sought by liming, than any other form of lime. Lime also helps to unlock phosphoric acid that is in combiantion with iron and aluminum, and so is insoluble. Most Virginia soils, and especially the Piedmont soils, are rich in iron compounds. A chemical analysis may show one of these soils to be rich in phosphoric acid, yet a field experiment may show that this same soil is benefited more by an application of phosphoric acid than any other plant food. This is because much of the phosphoric acid in the soil is in combination with the iron, and hence can not be used by plants. Lime acts upon the iron compounds, making some of the phosphoric acid available."

B. H. Hite, Circular 6, West Virginia Agricultural Experiment Station: "Lime makes plant food available. Potash is usually present in much larger quantities than other constituents of plant food that are likely to be deficient; and yet so much of it may be so securely held by the soil particles, that the application of a comparatively small quantity of soluble potash will often increase the yield. If lime is abundant it tends to liberate potash, making it more readily accessible to plants."

E. O. Fippin, Circular 7, Cornell University Agricultural Experiment Station: "The two important constituents whose direct availability from the soil particles is most affected by lime are potash and phosphorus. A large array of figures and observations show that lime liberates potash in an available form in the soil. Probably the most representative figures on this point are those of Frear, of Pennsylvania, who found on nine soils of widely different character an increase in the availability of potash ranging from six per cent on muck to 55 per cent on red shale clay. The average for the nine soils was 23 per cent, equivalent to 60 pounds potassium per acre. Frear found on the same nine soils in Pennsylvania, on which the availability of potash was determined, that 200 bushels of lime per acre increased the availability of phosphorus from 16 per cent on muck to 140 per cent on a limestone clay; in only one case, that of black shale, was its availability decreased. The average increase on eight soils was 43 per cent, equivalent to 140 pounds per acre. From this and other investigations it is clear that the use of lime is especially desirable on soils rich in iron and aluminum, but low in lime. The net result of the use of lime is equivalent, therefore, to the application of potash and phosphate fertilizers to the soil, not to mention the market influence on nitrates. It may be remarked further that this is entirely legitimate, as the soil store of food, while not to be wasted, is not to be hoarded; it is to be used wisely."

It should be of special interest to certain readers that a large section of the South is particularly blessed with large soil reserves of potash which by simple application of lime can be coined into merchantable food products. I refer to the Piedmont section from Maryland to Georgia. The blood-red soils of this territory are derived from the decomposition of granite and other igneous rocks and contain relatively enormous quantities of potash in an insoluble form. It is worthy of note that in case of a prolonged failure of the German potash supply and in case our geologists fail to locate deposits in this country, there are still sources of supply available at a price.

Through the southern Appalachians there are immense quantities of feldspar, a mineral which contains a large percentage of potash in insoluble form. Processes are available for the extraction of this potash and it would not be surprising if, under the incentive of the present high price, one of more of these processes would be brought to the stage of commercial operation. There are also certain by-products from which some potash might, in a pinch, be derived. The flue dust from cement kilns, for example, contains this element, and it is, therefore, true that while the dust from cement plants is highly disagreeable in towns and villages, it is of direct benefit to nearby agriculturists.

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Oakland Lime & Stone Co. has been incorporated by Charles F. Hammond, Oakland, Md., with $25,000 capital; limestone, gravel, etc.

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H. B. Sproul, C. R. Caldwell and Glenn Ruckman, of Staunton, Va., will install a lime-grinding plant with a daily capacity of 20 tons; steam power.

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Imperial Improvement & Development Co., Holtville, Calif., will begin work at once on the development of their lime deposits at Coyoto Walls, according to recent advices.

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Europe's fire loss per capita is but 35 cents, while the United States' fire loss per capita is $2.30. In analyzing the reason a comparison of the building materials is self-sufficient. Europe builds with brick and concrete. Ninety per cent of the American homes are of frame construction.

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A disastrous fire occurred at Bellefonte, Pa., recently when a spark from a locomotive set fire to the roof of the air compressor building of the American Lime & Stone Co., which was burned to the ground, together with the company's office building. Three million feet of match lumber belonging to the Pennsylvania Match Co. and an entire row of houses were destroyed, entailing a property loss of over $150,000. The American Lime & Stone Co.'s loss is $25,000, which is covered fully by insurance. Plans and specifications for rebuilding the burnt structures are now in process.

# With the QUARRIES

## Installs Immense Equipment at Granite Crushing Plant.

L. J. Hewes, hustling manager of the Chicago office of the Power & Mining Machinery Co., visited the great granite quarries of the Wisconsin Granite Co. last week, in company with John J. Sloan, secretary and general manager of the Wisconsin Granite Co., to arrange for the installation of additions to the crushing equipment in their various quarries situated at Red Granite, Berlin, Ableman, Waupauca, Utley, Montello, Neshkora, Loehrville, and other smaller places. Industries of this great concern, aside from the crushed granite trade, are somewhat slow, but in the crushed granite line orders for immediate delivery are crowding them to their utmost capacity and the future looks bright indeed. The quality of granite from these various quarries maintains a high position.

The demand for their crushed granite has increased year after year, until they are compelled to operate day-and-night shifts at some of their quarries and to increase their crushing capacity to a very great extent. At the Berlin plant a set of mammoth crushing rolls for producing the smaller sizes of the crushed granite is being installed, and at the Red Granite plant extensive additions to the crushing equipment are being made to the end that the great demand for crushed granite may be supplied.

The production of granite in various forms by this great company has been promoted industriously and now forms one of the important industries in Central Wisconsin. In the early spring of the present year immense quantities of crushed granite were in store, but at the present writing, although all of the plants have been operating to the fullest of their capacity during the entire season, the bin floors are swept clean every day. The immense equipment required to produce this material at the Berlin plant consisted of a set of 54 x 20 inch Superior rolls.

### NEW INCORPORATIONS.

Marquette Rock Co., Marquette, Mich.; capital, $40,000; incorporators, F. B. Spear, F. B. Spear, Jr., P. B. Spear and John L. Lipsett; manufacture rock and crushed stone, sand, gravel.

West End Quarry Co., care of William P. Bolton, 1109-1111 Calvert building, Baltimore, Md.; capital, $5,000; incorporators, Joshua T. Gallagher, William P. Bolton and William B. Longley.

Sparta Granite Co., Jacksonville, Fla.; capital, $100,000; to operate stone quarries; J. E. Bryan, president.

Franklin Quarry & Construction Co., 721 Northern Bank building, Seattle, Wash.; capital, $15,000; Jas. B. Kelley and others.

### CALIFORNIA QUARRIES.

J. F. Doherty, president of the Santa Maria Railroad Co., of Santa Maria, Cal., has bought a No. 4 Austin crusher, and has begun crushing rock for railroad and for general use.

The Leona Quarry, Oakland, Cal., on which reconstruction work under new management was undertaken some weeks ago, began blasting last week, and has now started crushing.

Agents of the Panama-Pacific Exposition Co. have been making an inspection of Red Rock, off the San Francisco Bay water front at Richmond, Cal., with a view to opening a quarry on the rock to secure red paving rock for the roads at the Panama-Pacific Exposition. Many years ago the material was quarried and sent to England for use in making red paint.

## Kansas City Quarries.

Kansas City, Mo., Oct. 20.—The Rosedale Crushed Stone Co. reports that business is opening up as far as orders are concerned, but that the weather has been so bad the crushers could not be operated. However, the weather is getting better and members of the company say that they will resume operations in a few days. The company has the contract to supply rock for the East Kansas avenue bridge, which will use about 10,000 yards.

Hood Lyle, manager of the Lyle Rock Co., states that the company had a fine year up to the first of August, and then business fell off a little on account of the war. However, he says that the prospects are good and that collections are picking up.

The John Prince Crusher Co. reports that the machines of the company have worked only about 20 days since September 1; however, the prospects are good for a continued spell of open weather now and that, coupled with added demands for crushed rock, will undoubtedly make business more satisfactory.

A plant, valued at $75,000, has been installed at Marion, Ore., by the Cascade Construction Co., which has a contract for supplying crushed rock for ballasting the Southern Pacific tracks between Albany and Portland. More than 100 men are employed and the monthly payroll is about $6,000.

The plant of the Interstate Stone Co., near Dayton, Ohio, has been put into operation and is now manufacturing crushed stone for road building, sugar stone for refining sugar, and agricultural limestone for fertilizing the soil. The plant has just been completed at a cost of probably $10,000 or $15,000.

The White Limestone Co., at Ogdensburg, N. J., closed down last week. The business of the company will be taken over by the Franklin Mineral Co., the parent corporation, of which Frederick Bigelow, of Newark, is president. The Franklin Mineral Co. also owns the limestone quarries that are operated by B. Nichol & Co. The Franklin Mineral Co. will organize a new company to continue the business at Ogdensburg.

Pittsburgh, Pa., Oct. 19.—The Clydesdale Stone Co. has had a good business this summer and fall, much better than in 1913. Prices show little change, its officials say, from spring quotations. The company is working hard on the big stone abutments and approaches to the Kiskiminetas bridge at Kiskiminetas Junction, Pa. The Consolidated Stone & Mining Co. reports prices about the same as in the spring, but competition very keen. It has had a fair business, chiefly in road work, and its quarries at Ellwood City, Pa., are now operating in good shape.

## Pittsburgh Quarry News.

Pittsburgh, Pa., Oct. 20.—Stone men have been doing a pretty good business in bridge, stone and curbing lately. The quarries, as a rule, are not running full, but are doing fully as well as most other lines of manufacturing in this district. There is hot competition from every job and prices are a little weaker than six months ago.

T. K. Morris reports that business is about the same as on September 1, but that the year is not going to come up to 1913. Fall trade has been quite satisfactory.

The Ellwood City Stone Co. is busier at this season than it has been for years. It finds that a much larger proportion of the bridges being built this year by the railroads are of stone than during the past few years. Municipal bridges are also being built very largely of stone this year. This company has recently secured the contract for two of the largest railroad bridge jobs awarded lately in this district.

The Consolidated Stone and Mining Co. has been busy the past six weeks chiefly on county and city road work. Requisitions have been coming in pretty freely but prices have to be quoted very low.

Byers & Craig, a big stone concern of New Castle, Pa., have the contract for building a bridge at Ellwood City, Pa., to cost $116,000. This will be one of the largest stone structures in that district.

The Euclid Manufacturing Co., of Sistersville, West Virginia, has just completed a big job for the Cleveland Railway Terminals in which it used more than four car loads of fine stone.

## Production of Explosives.

"The Production of Explosives in the United States During the Calendar Year 1913" has just been published by the United States Bureau of Mines. The total production of explosives, according to the figures received from manufacturers, was 463,514,881 pounds (231,757 short tons), as compared with 489,393,131 pounds (244,696 short tons), for 1912.

This production is segregated as follows: black powder, 194,146,747 pounds; "high" explosives other than permissible explosives, 241,682,364 pounds; and permissible explosives, 27,685,770 pounds.

These figures represent a decrease of 36,146,622 pounds of black powder and an increase of 7,212,872 pounds of high explosives and 3,055,500 pounds of permissible explosives.

As explosives are essential to quarrying, and the use of improved types of explosives lessens the dangers of mining, the Bureau of Mines undertook the compilation of information showing the total amount of explosives manufactured and used in the United States, its first report dealing with the year 1912. This is the second technical paper relating solely to the production of explosives that the bureau has issued. It is expected that similar publications will be compiled annually, and that with the co-operation of the manufacturers these statements will be published within a few weeks after the end of each year.

The John Prince Crusher Co., Kansas City, Mo., has again resumed work with all their equipment. For some time a large part of it has lain idle because of the strikes in Kansas City.

# SAND and GRAVEL

## A Difficult Gravel Handling Problem Solved.

The Northern Gravel Co., with a plant at Muscatine, Ia., and general offices at Davenport, Ia., has been operating their new plant since early spring. This plant has some novel and very interesting features. It is the first plant constructed using dredge pumps and pipe lines for conveying material to a dewatering pit at the foot of the plant and elevating the material by means of a dredging elevator.

The plant was designed and equipped by the Raymond W. Dull Co., of Chicago, and consists of the following equipment: The dredge pump is a 10-inch Morris machine, belt connected to a 100 horsepower motor. The pump and motor are mounted on a scow, and the suction line is suspended from a floating tower. One man operates the pump and hand winch for the suction line. The discharge line is carried on pontoons and delivers the water and material to one end of a long dewatering pit. The overflow water is carried away by a spillway at the opposite end of the pit.

A large continuous steel dredging elevator, so arranged that the buckets travel in the opposite direction from the flow of the water, picks up the material which settles in the bottom of the pit and carries it to the top of the plant. Practically all the material is saved, and the material is handled with a minimum of power and labor. The gravel gets a preliminary washing before it arrives at the screens.

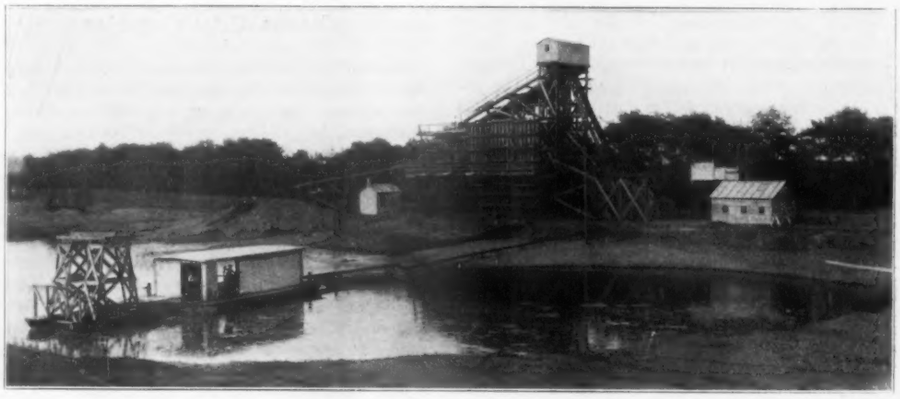
The elevator is made adjustable and can be set for digging to any depth of material. It also carries considerable water with the material, which aids in the washing at the screens. The screens consist of two rows of Dull's inclined conical washing screens with three in each row. The final separation is made by special cylinder screens with longitudinal bars instead of perforated plates or wire cloth.

The oversize stone from the first screen is delivered into a bin, from which it is occasionally run into a 36-inch Symons disc crusher. The crushed stone goes into the dewatering pit and is re-elevated to the top of the plant again.

The muddy water is separated from the sand by Dull's conical sand separators. Stock piles are also made by fluming the sand by fresh water.

The clear washing water is supplied by a 5-inch Morris centrifugal pump, direct connected to a motor. Loading and mixing spouts are placed on both sides of the plant for wagon and car loading.

The plant is electrically driven throughout and is operated by only six men. The material is prepared exceedingly well and the owners have expressed themselves as well pleased with the results, and state that the new principle is efficient and correctly applied. The plant has a capacity of 20 cars per day.



PLANT OF THE NORTHERN GRAVEL CO., MUSCATINE, IA.

REAR VIEW OF THE NORTHERN GRAVEL CO.'S PLANT AT MUSCATINE, IA.

The F. A. Furst Realty Co., Liberty road and Chestnut avenue, Baltimore, Md., has purchased a large sand and gravel deposit which will be developed in the near future, it is reported.

## Sand Companies Profit by Fine Weather.

Pittsburgh, Pa., Oct. 20.—River sand companies have been profiting much by the fine weather of the past few weeks. Not in 42 years has Pittsburgh seen such an October as this. Sand companies are still digging and some of them are storing sand for winter sales. Work on the big jobs downtown is being pretty well finished up. In foundry sand business is very quiet. Glass sand is beginning to move freely and there will be a good market for it this winter. Fall building has helped out considerably in the sale of building sand the past six weeks.

James Jiles Co. report from their headquarters that foundry sand is moving very slowly. This has been a very hard year for all the foundries in this district, and as many of them had fairly good stocks at the beginning of the year trade has been slow.

J. K. Davison & Brother announce that if the fine weather continues two or three weeks longer they will have had by far the best year in their history. They are now loading from 50 to 60 cars daily, almost all of it for delivery to towns in Greater Pittsburgh. Railroad work is furnishing the market for most of this sand and they predict that this will keep up until about January 1.

The Pennsylvania Glass Sand Co. reports business fair but not so good as last October. The glass factories started up this week and are likely to have a big winter's run on account of the European war, which has shut off all shipments of window glass from Belgium and other countries. This company has several plants on the P. R. R. and in West Virginia and is well equipped to take care of business very promptly.

A new industry at Boswell, Pa., is the sand plant of R. B. Phillips. The machinery was installed last week. The plant has a daily capacity of about 150 tons and a 30 horsepower motor has just been installed.

The Moline Sand Co., Moline, Ill., is installing a gravel cleaning and sorting machine at the yards near Twenty-fifth street. The capacity of the machine is 300 cubic yards in 10 hours. The gravel, as it is treated, will comply with specifications required by builders of concrete structures, paving, roofs and floors. Power for the operation of the machine will be furnished by four electric motors.

## Rainy Weather Affects Operations.

Louisville, Ky., Oct. 20.—Rainy weather has slowed things up somewhat with the sand and gravel men of Louisville during the past week or 10 days, but a good deal of business is booked and digging operations are going on about as usual. The rains have caused the river to rise to some extent, but not enough to handicap river operations. Large stocks are now on hand and digging will come to a close about December 15 unless the weather remains open.

The Louisville Sand & Gravel Co., which was recently incorporated for $7,500, has about completed its new plant and will be ready to start operations in a few days. This concern will dig sand and gravel from a pit and has erected a drag line excavator which will have a capacity of 30 to 40 yards per hour. A washing plant has been built and the company will shortly be in position to make carload shipments from its local switch. Since the large river sand companies have been in existence very little pit digging has been indulged in and this concern is the first to begin operations on a large scale with heavy machinery.

Joe Lloyd, general manager of the E. T. Slider Co., reports that river gravel is now almost universally used in concrete work. In street work a good deal of old rock taken from the torn-up streets or pikes of course is crushed on the ground and reused, but in building work gravel is the main factor. The new digger which the concern has been working on for some months past will not be ready for the river this fall and will be held up until spring. Digging will come to a close in about 60 days and the boats will be housed for the winter. The lots and hoppers are well filled and enough material is on hand to run through the winter with ease.

John Settle, of the Ohio River Sand Co., said that the season was rapidly drawing to a close, but that the company could report a very good year and was well satisfied. A good deal of work is yet to be done this fall and unless bad weather sets in early, business should be good for some time to come.

The R. Breslin Sand Co. succeeded the Patterson Sand Co. some years ago, but continues to operate under both names. R. Breslin, president of the company, said that September business was slightly dull, but that October, up until the rains began, was the best month on the concern's books since April. This concern operates a sand pit but also handles river sand and gravel. The first six feet of surface sand at the company's pits is very fine and is used by the local moulding concerns. About 25 feet of good sharp sand is then encountered, under which is about the same number of feet of good coarse gravel. Bed rock is struck at 55 to 60 feet.

### TRADE LITERATURE.

The Link-Belt Co., Chicago, Ill., has issued Book No. 124 pertaining to "Link-Belt Steel Chains and Sprocket Wheels." The booklet contains 42 pages of descriptive matter, tables, diagrams, etc., and is amply illustrated.

The Power & Mining Machinery Co., Cudahy, (a suburb of Milwaukee,) Wis., has issued Bulletin No. 42 pertaining to crushing rolls. Clear and concise descriptive matter, with suitable illustrations, are contained in the booklet under the subjects of Crushing Rolls, The Superior Crushing Rolls, Crushing Rolls Capacity and Horsepower of Crushing Rolls, Hercules Rolls, Simplex Crushing Rolls, Feeders for Rolls and Sectional Rolls for Mule Back Transportation. Outline drawings of Superior crushing rolls are also shown.

The American Pulverizer Co., of East St. Louis, Ill., has issued a pamphlet illustrating and describing briefly the American Ring pulverizer for grinding limestone, gypsum, sand, stone, gravel, brick bats, slag, coal and many other raw products. This pamphlet with further particulars will be mailed by the company upon request.

The Jeffrey Manufacturing Co., Columbus, Ohio, has issued Bulletin 96-A descriptive of the Jeffrey wagon loader, a portable, self-propelling mechanical machine that will handle one ton of coal, or two tons of sand, gravel, etc., per minute. The Jeffrey company recently sold quite a large number of these wagon loaders, each of which is effecting a great saving in both time and labor.

## Northwestern Road Congress Draws Near.

The first meeting of the Northwestern Road Congress occurs at Milwaukee, Wis., on October 28, 29, 30 and 31. Its officials invite every good road advocate in the states of Illinois, Iowa, Minnesota, Michigan, Wisconsin, North Dakota and South Dakota to attend the sessions of the congress and assist in developing a comprehensive system of interstate highways, and discuss other matters of importance. The highest practical and scientific authorities will discuss every phase of road construction; national, state and county highway experts will instruct and advise delegates

An auto tour over 100 miles of concrete highways and streets of Milwaukee county, and a monster exposition of road machinery, road equipment, road implements and road material will be features of the congress.

### TENTATIVE PROGRAM.

**First Session, 2:00 P. M., October 28.**

Address of Welcome for state of Wisconsin by Gov. F. E. McGovern.

Address of Welcome for Milwaukee by Mayor Gerhard Bading.

Response by Hon. T. R. Agg, Ames, Iowa, President of N. W. R. C.

Address: The Purpose of the Northwestern Road Congress.

Address: The National Importance of General Highway Improvement.

A brief review of the status of the highway problem in each state represented in the congress.

At 8:00 P. M., a smoker and general get-acquainted-meeting will be held.

**Second Session, 9:00 A. M., October 29.**

(Highway Administration.)

Paper: The Function of the State in Highway Administration.

Paper: The Function of the County in Highway Administration.

Discussion: (a) What responsibilities should be placed on the county engineer or commissioner?; (b) What should be the salary and tenure of office of the county engineer?; (c) When should the highway work be let by contract and when be done by day labor?; (d) What is the best system of inspection for contract road and pavement construction?

**Third Session, 2:00 P. M., October 29.**

(Highway Legislation.)

Paper: A Resume of the Principle Existing in State Highway Laws.

Paper: Some Basic Principles of State Highway Laws.

Paper: Are State and National Highway Associations of Service in Securing Good Road Legislation?

Paper: Is the Special Assessment Applicable to Financing County Roads?

**October 30, 9:00 A. M. to 12:00 M.**

Inspection of road work in Milwaukee county under direction of the Milwaukee county board of supervisors.

**Fourth Session, 2:00 P. M., October 30.**

(Characteristics of Types of Roads.)

Paper: Brick Roads and Pavements.

Paper: Concrete Roads and Pavements.

Paper: Bituminous Roads and Pavements.

Paper: Gravel and Macadam Roads.

Discussion in which representatives of the various road material interests will be asked to participate.

**Fifth Session, 9:00 A. M., October 31.**

(Educational and Sociological Influences of Highway Improvement.)

Paper: Relation of Good Roads to Rural Health and Happiness.

Paper: Relation of Good Roads to Rural Educational Opportunities.

Paper: Good Roads and the Child Welfare Movement.

Paper: Relation of Good Roads to Systems of Agriculture.

**Sixth Session, 2:00 P. M., October 31.**

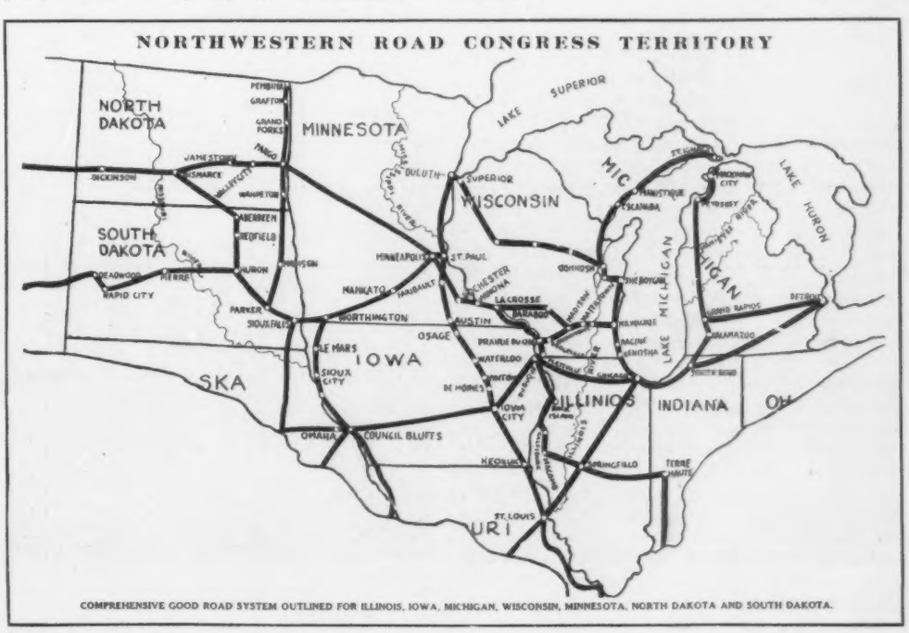
(General Topics.)

Paper: The Beautification of the Roadside.

Paper: The Necessity of Coöperation to Secure Inter-State Roads.

Paper: How May Better Connections Between City Pavements and Improved County Roads be Secured?

Paper: The Problem of the Highway Bridge and Culvert.



COMPREHENSIVE GOOD ROAD SYSTEM OUTLINED FOR ILLINOIS, IOWA, MICHIGAN, WISCONSIN, MINNESOTA, NORTH DAKOTA AND SOUTH DAKOTA.

# CLAY PRODUCTS

## Clay-Working Industries.

The present report deals with the products of clay manufactured and not the production of clay. The year 1913 in the clay-working industries was on the whole one of progress. The total value of all clay products marketed in the year—the principal criterion in judging the status of the industry—was $181,289,132, compared with $172,811,275 in 1912, an increase of $8,477,857, or 4.91 per cent. Compared with 1908, the year of general business depression, the increase was $48,091,370, or 36.11

*Value of the products of clay in the United States in 1912 and 1913, with increase or decrease.*

| Product. | 1912 | 1913 | Increase (+) or decrease (—) in 1912. | Percentage of increase (+) or decrease (—) in 1912. |
|---|---|---|---|---|
| Common brick | $51,796,205 | $50,134,727 | —$1,661,509 | — 3.21 |
| Vitrified paving brick or block | 10,921,575 | 12,136,221 | + 1,215,646 | +11.14 |
| Front brick | 9,455,297 | 9,614,138 | + 158,841 | + 1.68 |
| Fancy or ornamental brick | 223,307 | 109,703 | — 113,604 | —51.23 |
| Enameled brick | 1,027,314 | 1,226,708 | + 199,394 | +19.31 |
| Drainage | 8,010,350 | 8,558,320 | + 548,070 | + 6.84 |
| Sewer pipe | 12,147,677 | 14,876,103 | + 2,728,426 | +22.46 |
| Architectural terra cotta | 5,940,636 | 7,743,306 | + 847,130 | — 2.67 |
| Fireproofing | 7,174,148 | 8,620,216 | + 1,446,068 | +20.16 |
| Tile (not drain) | 5,909,495 | 6,109,180 | + 209,685 | + 3.54 |
| Stove lining | 516,874 | 535,667 | + 18,793 | + 3.64 |
| Fire brick | 17,077,539 | 20,027,129 | + 2,749,592 | +16.38 |
| Miscellaneous | 3,764,793 | 3,018,316 | + 253,533 | + 9.17 |
| Total brick and tile | 136,307,111 | 143,296,757 | + 6,989,646 | + 5.13 |
| Total pottery | 36,504,164 | 37,992,375 | + 1,488,211 | + 4.08 |
| Grand total | 172,811,275 | 181,289,132 | + 8,477,857 | + 4.91 |

per cent, and compared with 1903, it was $50,226,711, or 38.32 per cent.

Of the two great divisions of the industry (1) brick and tile and (2) pottery, the former showed the larger increase, both actual and proportionate. The increase in the brick and tile industry was $6,989,646, or 5.13 per cent; the increase in the pottery industry was $1,488,211, or 4.08 per cent.

The most prominent features in the industries in 1913 were the large decrease in the production and value of common brick in the region supplying the New York market and in the value of architectural terra cotta, and the large increase in the value of vitrified brick, sewer pipe, fireproofing and fire brick. The engineering and refractory products, vitrified brick, drain tile, sewer pipe, fire brick and stove lining, showed an increase of $7,257,428, and the structural materials showed a net decrease of $521,315 in 1913. The growing use of hollow tile not only in fireproof construction in the larger buildings, but also in dwelling houses and other small structures, is shown in the large and continued increase in the value of this material, the making of which seems destined to be an important branch of the industry. The vitrified paving brick industry had probably the most satisfactory year it has yet experienced, there being a large increase in its production, value, and average price per 1,000. The effect of the educational work of the several associations devoted to the increased use of vitrified brick as a paving material, not only for city streets but as the most satisfactory, enduring and economical material for country roads, is being felt, and this industry no doubt has a bright future.

In the brick and tile industry decrease was shown in the quantity and value of common brick, and in the value of fancy or ornamental brick and of architectural terra cotta. The decrease in the quantity and value of common brick, and in the value of fancy or ornamental brick and of architectural terra cotta. The decrease in the quantity of common brick was 466,448,000, or 5.45 per cent, but owing to the higher prices prevailing in 1913 the proportionate decrease in value was less—3.21 per cent. Increase was recorded in the quantity and value of vitrified paving brick, of front brick, and of fire brick; in the value of enameled brick, sewer pipe, drain tile, stove lining, fireproofing, and tile, not drain. Vitrified brick, enameled brick, fire brick, sewer pipe, fireproofing, and tile, not drain, reached their maximum value in 1913, as also did the total value for brick and tile products.

The largest increase in value recorded was fire brick—$2,749,493, or 15.38 per cent, and the largest decrease was in common brick—$1,661,509, or 3.21 per cent.

In statements to the Geological Survey quantities are reported for common brick, front brick, vitrified paving brick, fire and silica brick, but not for fancy or ornamental brick or enameled brick. The average price per 1,000 increased in 1913 in every case, except front brick, which was the same in both years—$11.62. The increase in the price of common brick was 15 cents, of vitrified paving brick 68 cents, of clay fire brick 72 cents, and of silica brick 34 cents.

A notable feature of the clay-working industries in the last few years has been the concentration of the industry into fewer and larger units, principally by the elimination of the smaller temporary plants, though considerable consolidation has also been going on. This concentration is shown by the fact that the average value of output per operator has increased from $21,451 in 1904 to $44,598 in 1913.

## To Promote Clay Products at Panama-Pacific Exposition.

For the purpose of promoting the use of burned clay products through publicity, and as a part of the initial campaign to build a modern, low-cost, fire-resisting residence at the Panama-Pacific International Exposition, the directors of the recently organized Panama-Pacific Clay Products Association met at the Sherman house, Chicago, Oct. 6, the meeting being called by W. P. Varney, chairman of the committee of the organization. Committees were appointed to take up the work of securing subscriptions to cover the initial cost of the campaign. Manufacturers of clay products have been considering for several months past a proposition of this kind and a hearty response is confidently expected.

The men who constitute the officers' list and the first board of directors are as follows: Herman L. Matz, of the S. S. Kimbell Co., president; W. P. Varney, of the Hydraulic-Press Brick Co., vice-president; Charles Bonner, of the Bonner & Marshall Brick Co., treasurer; Louis F. Desmond, secretary; E. K. Cormack, of the Wisconsin Lime & Cement Co.; J. J. Lyon, of the Meacham & Wright Co.; C. J. Hill, of the Kimbell-Hill Co.; Thomas C. Moulding, of the Thomas Moulding Brick Co.; Theo. A. Randall, of the "Clayworker"; R. C. Penfield, of the American Clay Machinery Co.; Arthur D. Rogers, of the "Brickbuilder"; William Schlake, of the Illinois Brick Co.; Gordon C. Keith, of the "Canadian Clayworker"; and Frederic W. Donahoe, of "Brick and Clay Record."

*Value of the products of clay in the United States in 1912 and 1913, by States and Territories.*

| State or Territory. | 1912 | | | 1913 | | |
|---|---|---|---|---|---|---|
| | Brick and tile. | Pottery. | Total. | Brick and tile. | Pottery. | Total. |
| Alabama | $1,912,966 | $22,213 | $1,935,179 | $2,071,423 | $20,158 | $2,091,581 |
| Arizona | 178,564 | | 178,564 | 215,542 | | 215,542 |
| Arkansas | 633,649 | 28,867 | 662,033 | 509,967 | 19,757 | 529,624 |
| California | 5,092,797 | 219,653 | 5,312,450 | 5,054,793 | 290,235 | 5,344,908 |
| Colorado | 1,426,147 | 41,247 | 1,437,394 | 1,247,010 | 46,501 | 1,293,511 |
| Connecticut and Rhode Island | 1,665,030 | (a) | 1,665,030 | 1,872,234 | (a) | 1,872,234 |
| Delaware | 162,216 | | 162,216 | 187,280 | | 187,280 |
| District of Columbia | 217,486 | (a) | 217,486 | 149,014 | 11,030 | 160,044 |
| Florida | 272,766 | | 272,766 | 253,164 | | 253,164 |
| Georgia | 2,787,454 | 19,057 | 2,806,511 | 2,064,091 | 28,528 | 2,092,619 |
| Idaho and Nevada | 176,128 | | 176,128 | 190,701 | | 190,701 |
| Illinois | 14,279,220 | 931,931 | 15,210,999 | 14,280,611 | 915,263 | 15,195,874 |
| Indiana | 6,356,149 | 1,077,102 | 7,433,251 | 6,811,940 | 1,186,706 | 8,098,646 |
| Iowa | 4,692,183 | 20,141 | 4,712,326 | 5,552,983 | 20,698 | 5,573,681 |
| Kansas | 2,036,500 | (a) | 2,036,500 | 1,919,910 | (a) | 1,919,910 |
| Kentucky | 2,799,706 | 114,304 | 2,914,010 | 2,912,153 | 102,118 | 3,014,270 |
| Louisiana | 523,943 | (a) | 523,943 | 638,491 | (a) | 638,491 |
| Maine | 334,101 | (a) | 334,101 | 661,571 | (a) | 661,571 |
| Maryland | 1,681,943 | 184,711 | 1,866,654 | 1,782,469 | 135,034 | 1,917,503 |
| Massachusetts | 1,515,067 | 252,039 | 1,767,106 | 1,583,530 | 231,343 | 1,814,873 |
| Michigan | 2,350,606 | 198,992 | 2,549,598 | 2,421,264 | 222,893 | 2,644,157 |
| Minnesota | 1,611,040 | (a) | 1,611,040 | 1,781,017 | (a) | 1,781,017 |
| Mississippi | 599,083 | 12,705 | 611,788 | 623,520 | 17,451 | 641,771 |
| Missouri | 6,409,346 | 2,515 | 6,412,861 | 6,598,064 | 3,612 | 6,601,676 |
| Montana | 314,017 | (a) | 314,017 | 436,397 | (a) | 436,397 |
| Nebraska | 805,398 | | 805,398 | 886,166 | (a) | 886,166 |
| New Hampshire | 692,090 | (a) | 692,090 | 462,534 | (a) | 462,534 |
| New Jersey | 10,902,553 | 8,025,920 | 18,928,553 | 10,966,553 | 8,530,545 | 19,797,378 |
| New Mexico | 185,275 | | 185,275 | 176,528 | | 176,528 |
| New York | 9,655,226 | 2,403,522 | 12,058,858 | 8,627,918 | 2,841,603 | 11,469,476 |
| North Carolina | 1,456,703 | 9,960 | 1,465,663 | 1,691,723 | 13,093 | 1,704,816 |
| North Dakota | 231,245 | | 231,245 | 262,580 | | 262,580 |
| Ohio | 19,902,773 | 15,508,755 | 34,811,528 | 21,898,407 | 16,519,889 | 38,388,296 |
| Oklahoma | 535,318 | | 535,318 | 573,371 | | 573,371 |
| Oregon | 774,226 | (a) | 774,226 | 771,780 | | 771,780 |
| Pennsylvania | 19,408,561 | 2,128,540 | 21,537,221 | 22,185,383 | 2,046,039 | 24,231,422 |
| Porto Rico | 14,294 | (a) | 14,294 | 6,359 | (a) | 6,359 |
| South Carolina | 697,962 | 6,761 | 704,563 | 573,659 | 6,782 | 580,241 |
| South Dakota | 41,495 | | 41,495 | 46,685 | | 46,685 |
| Tennessee | 1,327,550 | 173,166 | 1,501,016 | 1,347,965 | 145,109 | 1,493,074 |
| Texas | 2,799,464 | 146,604 | 2,946,068 | 2,958,975 | 80,374 | 3,039,349 |
| Utah | 724,978 | (a) | 724,978 | 708,936 | (a) | 708,936 |
| Vermont | 79,296 | | 79,296 | 94,772 | | 94,772 |
| Virginia | 1,874,174 | (a) | 1,874,174 | 1,705,651 | (a) | 1,705,651 |
| Washington | 2,288,570 | (a) | 2,288,570 | 2,280,226 | (a) | 2,280,226 |
| West Virginia | 1,410,788 | 3,365,168 | 4,775,874 | 1,783,393 | 3,436,957 | 5,220,270 |
| Wisconsin | 1,036,385 | 7,960 | 1,044,405 | 1,013,028 | 7,700 | 1,020,728 |
| Wyoming | 46,103 | | 46,103 | 61,676 | | 61,676 |
| Other States | | 694,442 | 694,442 | | 709,549 | 709,549 |
| Total | 136,307,111 | 36,504,164 | 172,811,275 | 143,296,757 | 37,992,375 | 181,289,132 |
| Percentage of total | 78.85 | 21.15 | 100.00 | 79.04 | 20.96 | 100.00 |

(a) Included in "Other States."

## San Francisco Clay Items.

San Francisco, Cal., Oct. 19.—The California Brick Co. has ordered a new shale planer for installation at its plant. Other improvements will be made at the works during the dull season. A large amount of clay has been stored for use during the winter months.

The California Fireproofing Co., Bankers' Investment building, has taken the control of a terra cotta manufacturing plant at Antioch, Cal., and will market the output in San Francisco and other points in Central California. W. F. Barnes is president of the company.

The California headquarters for the Denison Interlocking Block Co. have been established at 310 Ochsner building.

G. D. Herrold, manager of the Gilroy Shale Products Co., which is planning to erect a brick plant near Gilroy, Cal., is now securing a right-of-way for a railway line connecting the company's deposits with Gilroy.

## Clay Market Active in Kansas City.

Kansas City, Mo., Oct. 20.—The Kansas Buff Brick & Mfg. Co. is supplying the brick for the St. Mary's Academy, which will use about a quarter million. Andrew G. Bodewell, manager of the Kansas City office, expects considerable good business next spring because a great deal of work that has been planned is held off temporarily.

Ludowici Celadon Co., dealers in terra cotta and roofing tile, closed the contract recently for roofing the Salina, Kan., union depot and the immense hay barn at the state hospital at Topeka, Kan.

The Kansas City office of the Hydraulic-Press Brick Co. reports very good business. The company is now supplying the brick for postoffices in Excelsior Springs, Mo.; Casper, Wyo., and McPherson, Kan. The company has also started to deliver the face brick to the Muehlbach hotel, which will use about 400,000.

Greenbaum & Hardy, architects, in the Scarritt building, announce that they will have the plans for a bank building in Newton, Kan., ready November 1. The building is being planned for the Quiring estate and will be of brick and terra cotta, non-fireproof, and will cost about $17,000.

Manager Strong, of the Standard Vitrified Brick Co., Coffeyville, Kan., was in Kansas City recently. He reported that the company is loaded with orders and that the prospects for good business to continue through the winter are very bright.

## Brick Men Co-operate.

**Will Agree Upon a Uniform Accounting System.**

Plans to join forces with the National Paving Brick Manufacturers' Association, the Refractories Manufacturers' Association and the Eastern Paving Brick Manufacturers' Association in laying out and installing a uniform cost accounting system were indorsed Oct. 6 by the board of directors of the American Face Brick Manufacturers' Association, meeting at the Neil house, Columbus, Ohio.

This union of forces is proclaimed as a boon to the face brick manufacturers who have been suffering from the effect of cut prices and inadequate knowledge of costs. The association heads maintain that the rise in price resulting will be only so far as to be a protection to the business and not one out of reason.

The effect of the European war upon the brick business was discussed. It was pointed out that measures are necessary to inspire among bankers a greater friendliness and confidence in credit to the building trade, if that branch of business is not to suffer severely. A campaign of education to bring about more fireproof construction, particularly in dwelling houses, was outlined.

## Philadelphia Clay News.

Philadelphia, Pa., Oct. 20.—The Philadelphia Fire Brick Co., 2306 Vine street, is making extensive alterations at its plant. Two new kilns are now being erected. The new additions have been made necessary by the steady increase for the company's rolling mill No. 1 fire brick.

Extensive alterations are being made at the brick plant operated by Esseg & Myers, Second and Butler streets, Philadelphia. In addition to this the machinery is being generally overhauled and repaired. The firm is also contemplating the erection of two new kilns. Business with the concern is reported as being very good.

R. F. Channell, Philadelphia representative for the American Enameled Brick Co., Hale building, returned recently from an extensive business trip throughout the state of Delaware in the interest of his firm. Mr. Channell while on the tour visited several of the large brick manufacturers in that section.

E. E. Nickson, manager of the National Fire Proofing Co., 317 Land Title building, Philadelphia, in discussing business conditions here, said: "Business with us at present is very satisfactory and we have no room to complain. Among the large contracts received recently for supplying tile are: 1,500 tons for the Wharton Switchworks, Easton, Pa.; 1,500 tons for the Allentown High School; 150 tons for the Allentown court house; all located in Pennsylvania, and 2,500 tons for the Traymore hotel in Atlantic City, N. J. We also have several small contracts scattered throughout Pennsylvania that are figuring prominently in the work now being constructed in this state."

### INFORMATION WANTED.

A Pennsylvaina manufacturer of hollow building tile states that he has continually met with trouble with his 8x8x16 hollow building bricks by their cracking in the steam dryers. He says that he has tried letting them stand in a tunnel from 12 to 24 hours without steam, but he found 10 per cent to be the minimum which it was necessary to return to the dry pan. We cordially appreciate any suggestions from our readers, to be answered through these columns, for the benefit of other readers. We realize that this will involve a litle technical problem which some of the tile manufacturers may have worked out, and if so it will be a good thing for the man who has the explanation to give it broadcast to those who are working along the same lines, and they may have some other point which they would be glad to contribute for his assistance. The editor invites the expressions of fellow building tile manufacturers with regard to their problems of construction and will place the same in these columns for the criticism and edification of those who are interested in this line of great importance to the trade.

## News from the Field.

The plant of the Aetna Brick Co., South Windsor, Conn., was partially destroyed by fire recently; loss $7,000.

Repairs costing nearly $15,000 have been completed at the old Bolin brick plant in South Zanesville, Ohio, now owned by the National Paving Brick Co., and it is expected that 100 men will begin work shortly.

The Excelsior brick plant at Rockwood, Pa., has closed down until next spring. Extensive repairs will be made.

Groman Brothers' brick plant at Bethlehem, Pa., was damaged by fire recently to the extent of $15,000.

The Acme press brick plant at Denton, Texas, resumed operations with a full crew last week.

Announcement has been made that the Southern Refractory Co., a new concern to Chattanooga, Tenn., will take over the obligations of the Southern Clay Products Co., located at Mission Ridge, Ga., formerly owned and operated by Herbert Cutler Brown.

H. E. Stratton and others, of Pittsburgh, Pa., are arranging to build a new sewer pipe plant near Port Homer, Jefferson county, O., to cost $100,000.

The Thornton Fire Brick Co., Grafton, W. Va., has resumed operations after being closed down for some time because of the plants being burned last year. The new plant will have a capacity of 50,000 brick per day. The incorporators are Col. Thomas J. McAvey, Col. O. J. Fleming, W. B. Cruise, George W. Lear and Charles Kimmel, of Grafton.

The Parkersburg Shale Brick Works has secured a new charter and will operate at Parkersburg, W. Va., in the future under the name of the Parkersburg Brick Works. Considerable machinery will be added.

The Harbison-Walker Refractories Co., Pittsburgh, Pa., declared its regular quarterly dividend of one and one-half per cent on preferred stock, payable Oct. 20 to stockholders of record Oct. 10.

One of the best brick roads in Pennsylvania has just been completed from Charleroi to Speers, in Washington county. At the latter place the contract has been awarded for a brick street. The state highway department is now building a brick road from Fayette City, Pa., to Brownsville, Pa., and is also building 1,354 feet of brick road just above Fayette City.

The North Bend Brick Works, Lock Haven, Pa., resumed operations in full this week.

The plant of the Bloomsburg Brick Co., Sunbury, Pa., was badly damaged by the burning of its machine shop and part of its grinding department on September 10th.

The plant of the Savage Fire Brick Co., Cumberland, Md., which was owned by Charles G. Gorsuch, of Westminster, Md., was damaged $800,000 by fire recently.

The West Virginia Fire Clay Co. is considering the removal of its plant from New Cumberland, W. Va., to Irondale, Ohio, owing to the increased demand for ground clay.

The Centre Brick & Clay Co., Orviston, Pa., which is controlled by capitalists of Bellefonte, Pa., has declared a semi-annual dividend of three and one-half per cent on its preferred stock.

Operations were started recently at the brick plant of Robert B. Wilbe, Philadelphia, Pa., after a shutdown of some three weeks, during which time the machinery and entire equipment was generally overhauled.

## Detroit Is Great Center for Brick.

**Industry Represents $3,000,000 Investment and Employs 1,000.**

There are 250,000,000 building brick manufactured annually in Detroit, many thousands of which are exported to Windsor, Walkerville, and other Canadian cities, largely on account of the superior qualities of Detroit-made brick. It is for the purpose of placing this great industry on the map locally that the Detroit Brick Manufacturers and Dealers' Association was organized.

The industry in Detroit represents an investment of $3,000,000 and employs approximately 1,000 men. The brick plants of Detroit are located in the western suburbs, where from 10 to 12 acres of clay land are annually being converted into brick for the building of Detroit homes, factories, barns, sewers, etc. The brick industry has increased wonderfully in the last 15 years. It was the custom only a few years ago to dig the clay by hand; mold and dry it in the open air, where the brick were subject to bad weather conditions. In recent years large modern drying plants where brick are made during the entire year have been constructed. The clay is dug by large steam shovels, conveyed on cars to the driers where the brick are molded, dried and burned, and, therefore, the Detroit brick manufacturer produces today a nice smooth, even-color red brick, as can be noted by looking at Detroit buildings.

All the brick manufacturing concerns of Detroit are open for inspection and those desiring at any time to see brick made can arrange for a visit to the Detroit brick yards by writing, telephoning or calling in person at the offices of the Detroit Brick Manufacturers' and Dealers' Association, 2015 Dime Bank building.

### NEW INCORPORATIONS.

Hall & Sons, Inc., Jewett, Green county, N. Y.; capital, $155,000; manufacture clay products, fire clay, fire, brick, etc.; incorporators, Mary R. H. Bangs, 69 E. 77th street, and Florence H. Colgate, 305 W. 76th street, New York City, and Edith H. Washburn, 18 Highland street, Cambridge, Mass.

Elk Fire Brick Co., St. Mary's, Pa., has increased their capital from $220,000 to $300,000.

Gary Brick & Tile, Co., Gary, Ind.; capital, $60,000; Frank Enwecke and others.

Darlington Brick & Tile Co., Darlington, S. C.; capital, $20,000; Bright Williamson and J. E. Blackman.

The Marion Brick Co., Fairmont, W. Va.; capital, $50,000; Z. F. Davis, F. W. McIntyre, O. J. Fleming, M. W. Harris and Levi B. Harr.

The Star Tiling Co., Pittsburgh, Pa.; capital, $10,000; Owen S. Cecil, Bellevue; Andrew W. Robertson, Dormont; W. M. Alrich, Edwin L. Wilson, Marie E. Snyder, Pittsburgh.

Paden City Pottery Co., Paden City, W. Va., capital stock $75,000; Walter B. Eichleau, Wm. J. Herbster, Simeon T. Patterson and others, all of Pittsburgh, Pa.

The Mutual Press Brick Co., Shrewsbury, Mo.; company owns a 45-acre tract; Charles J. Zimmerman, Frank Fronneyer and Charles W. Shafer.

Greene County Brick and Tile Co., Tulip, Ind.; $50,000; George W. Cotton, Marshall Cotton and A. Carlton Snodgrass.

Bippus Tile Co., Bippus, Ind.; $25,000; to deal in clay products; C. L. Wright, M. G. Wright, G. M. Krick.

The Brickton Brick Co., Brickton, N. C.; D. S. Pace, president; C. S. Calvert, vice-president; J. C. Sherrill, secretary and general manager; J. L. McDowell, treasurer.

High Point Roofing Tile Co., High Point, N. C.; capital $25,000; W. F. Norman, R. R. Ragan, Levi J. Hayworth and others.

Schuylkill Valley Vitrified Products Co., Reading, Pa.; capital $5,000; Wm. H. Calvert and others.

# GYPSUM PRODUCTS

## Pulp Plaster Company to Expand.

As the result of its purchase recently of the old Metzger Linseed Oil Co.'s plant, on Albion street, Toledo, Ohio, the Toledo Pulp Plaster Co. acquires a tract of land containing nearly 100,000 square feet, to be used in the establishment of the largest supply yards in Toledo, as well as the opening of a local retail business. The purchase was made from the American Linseed Oil Co., of New York, which bought the property from the Metzger interests for $175,000 in 1901.

Located on the ground are four large brick factory buildings, five iron storage tanks, and several smaller buildings. Some of the buildings are to be removed to make way for modern storage sheds and a large new building for manufacturing purposes. Contracts for new buildings will be let shortly. The Lake Shore railroad will connect with the new plant by a 400-foot spur track, already under construction.

The present plant of the Toledo Pulp Plaster Co. is located at West Bancoft and Albion streets. D. A. Hemley is president; D. C. Hemley, vice-president and general manager; R. L. Witters, secretary-treasurer.

## New Fireproof Partition System.

The illustration on this page shows United States gypsum board, used in connection with the Sprague system of fireproof protection. The board is put on the studs as shown; the small projections come through the board and clinch on the other side. Such a partition is said to be about 50 per cent less in weight than plaster block and about 70 per cent less than clay. It is also said to compare favorably in cost to other forms of fireproof partition. The steel studs are made in three-quarter inch to four inch sizes and a finished partition would be two inches to six inches thick. The J. P. Sprague Co., Kansas City, Mo., hold the patent rights for the article, and are just beginning to introduce it.

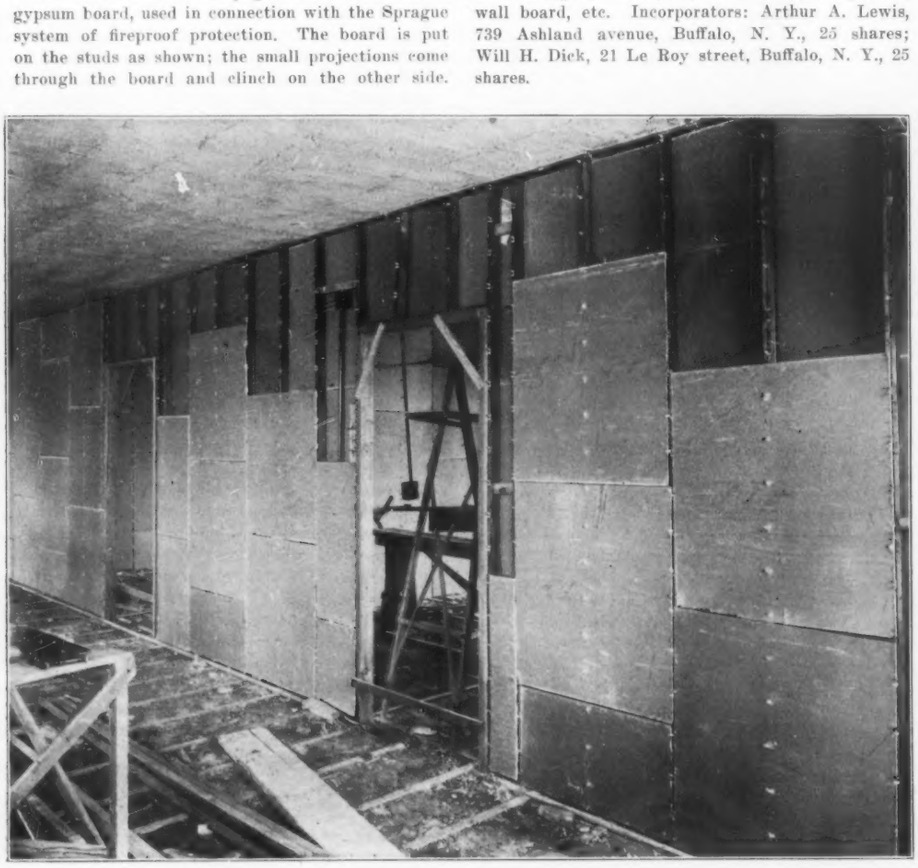
### KANSAS GYPSUM TO JAPAN.

The United States Gypsum Co., Blue Rapids, Kan., recently shipped two carloads of their finest grade of molding plaster to Kobe, Japan. The shipment was made in reinforced barrels via San Francisco and thence by boat to Japan.

Rock Plaster Co., of New York City, is to finance the new plaster grinding industry at Walton, Canada; plaster, gypsum, etc. The plant will cost about $100,000.

E. P. Davis (2319 Elm street) and Geo. Flourney (1527 Thirteenth street) and associates, of Bakersfield, Cal., have formed a company for the manufacture of gypsum products near Cottonwood Station, Cal.

Dick & Lewis, Inc., Buffalo, N. Y., incorporated with a capital of $5,000; to manufacture plaster, wall board, etc. Incorporators: Arthur A. Lewis, 739 Ashland avenue, Buffalo, N. Y., 25 shares; Will H. Dick, 21 Le Roy street, Buffalo, N. Y., 25 shares.



GYPSUM BOARD ON SPRAGUE SYSTEM FIREPROOF CONSTRUCTION.

## Small Contracts Bring Active Demand.

Louisville, Ky., Oct. 20.—Business with the wall plaster manufacturers and dealers of Louisville has been remarkably active this season, largely accounted for by the numerous small contracts. In small contracts the waste material is generally greater and the business sticks at home instead of going out of the city, as is often the case on large office buildings and other big contracts. The trade is feeling very well satisfied over results and few if any complaints are to be heard.

J. B. Campbell, secretary of B. J. Campbell & Sons, who operates the Kentucky Wall Plaster Co. and the Southern Wall Plaster Co., reports all plants running full just now and local business good in spite of rainy weather. Outside work has progressed to a point where bad weather is not hindering interior finishing to any extent. The only contracts now being awarded are small, and September building permits are behind those of last year. However, the company has been very busy locally and is well satisfied. Out-of-town shipments have not been as active as expected, but are holding up fairly well for the lateness of the season.

W. Selke, president of the Atlas Wall Plaster Co., reports sales as good both locally and out in the state. The company recently was awarded a big contract for plastering for a new picture show house which is in course of remodeling at Eighteenth and Market streets. The building is a large one and formerly was used as a market house. A good deal of work is to be done in converting it into a "movie" house.

The Union Cement & Lime Co., which jobs several grades of plaster, has been fairly busy in the past few weeks and reports good sales of plaster and gypsum products. Besides the main house the concern is now operating three branches in various parts of the city.

## New Machinery Added to Plant.

**New Drier and Rymond Mill Installed Make Factory Among Most Modern.**

With the expenditure of thousands of dollars, the Pacific Coast Gypsum Co., of Tacoma, Wash., has recently added improvements to its plant on the city waterway that make it among the best of its kind in the country. A huge cylinder drier and a Raymond mill were among the machinery installed, while an addition to the wood portion of the building was put on the rear, including three new bins for the finished product.

**Lifts Products by Air.**

The new drier has a capacity of 15 tons per hour and does its work almost silently by the aid of a fierce oil flame furnishing the heat. After the crushed gypsum rock leaves the drier it enters the grinding department, which has been entirely reconstructed. The new mill is the chief feature added, which does its grinding by rolls and lifts the fine, powdery gypsum through a pipe by air pressure 44 feet into the bins. The use of air insures uniform grinding.

The company now has an enormous supply of rock on hand in its huge storage bin, and another barge is waiting to be discharged. The two big kettle bins, holding 80 and 50 tons respectively, are kept busy these days turning out a finished product of approximately 100 tons per day.

# SAND-LIME BRICK

## The Winchester Exhibit.

An exhibition of fireproof structural materials was held recently at the Salem, Mass., armory which was mammoth in its scope, bringing about one of the most forceful comparisons of building materials in respect of their fireproof and permanent qualities and their relation as to beauty of appearance. The exhibit was secured through the efforts of the Salem Chamber of Commerce and will go down in history as a lasting lesson to home-builders, many of whom found out innumerable things in regard to building materials and plans that they never dreamed existed before, seeing them at the show with their own eyes.

Particular emphasis was given by prominent speakers to the housing question, as the problem which occupies in our social and economic activities the only one of the three essentials of human life, food, clothing and shelter, that has any permanency and the only one of the same three that leaves to our posterity any trace by which we may be judged.

For pure beauty of brick architecture no exhibit exceeded that of the Winchester Brick Co., whose plant is located in the town of that name near Boston. The component materials are sand, lime and cement, and the whole makes a most beautiful brick, in color and texture as well as in shape and square, clean-cut corners. The shades run from white, to buff, gray and cream, according to the color of the sand used in making them. The treasury building at Washington was built with this company's bricks.

The Winchester display occupied a space 32 by 40 feet and was laid up in various bonds and mortar colors so as to give the public an idea of how the material would look in a building. The company used its Natural Gray and No. 3 buff for the work, which caused considerable comment by the visitors and the press.

The Winchester Brick Co. is now furnishing two prominent contractors in Salem with sand-lime brick, and there are also many plans under way where its product is being specified through other sources, notably that of a new schoolhous at Arlington, Mass., where a contract for 1,500,000 sand-lime brick will undoubtedly be secured by the Winchester concern.

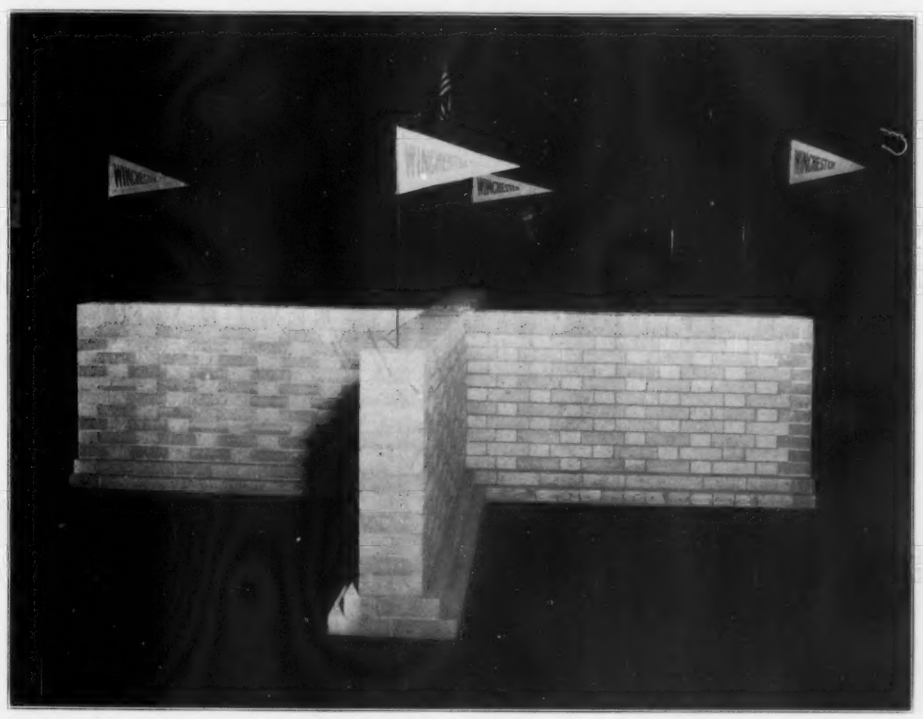


EXHIBIT OF THE WINCHESTER BRICK COMPANY AT THE SALEM ARMORY.

## The Sauerman Power Scraper.

The Sauerman Power Scraper was designed to meet the demands for simple and efficient means for making cuts and fills, for leveling spoil piles, for general excavation work and for digging and conveying material from bank or pits to receiving hoppers or belt conveyors. It is of the bottomless type, built with two heavy side plates and a back plate riveted to these side plates. A renewable cutter edge is fastened on a runner frame which is pivotally and adjustably connected to two hinge plates which are bolted to the back end and lower side of the side plates of the scraper. The cutter edge, being pivotally and adjustably connected, can be readily adjusted for digging the different kinds of material and soil. The scraper is substantially built and reinforced throughout. The sides of the bucket are equipped with renewable wearing strips. These wearing strips can be easily taken off and put on by means of bolts. In case of hard digging the cutter edge can be equipped with teeth.

When the scraper is pulled forward the runner frame and the cutter edge are tilted to the digging position by means of a chain attached to the bridle chains in front of the scraper and to the runner frame in the rear of the scraper. When the empty scraper is pulled back by the "tail rope" or "pull-back cable" the runner frame and cutter edge are pulled flat, thus forming a sled for the scraper to travel on and preventing the scraper from digging into the material while it is being returned to the digging point.

To operate, the scraper is simply pulled back and forth over the material to be excavated. When the scraper is pulled forward the cutter edge will dig into the material and cause the loosened material to fill the space between the sides of the scraper. When this space is filled the cutter edge becomes ineffective and the scraper with the load will drag to the dumping place. The scraper being of the bottomless type, the dumping is effected by simply pulling on the tail cable. By pulling on the tail cable the cutter edge and runner frame are pulled down to a horizontal position, thereby loosening the material between the sides, and the scraper leaves its load at this point.

THE SAUERMAN THREE-FOURTHS YARD SCRAPER.

To change the line of operation, the guide block directly in back of the scraper is shifted to either side of the line of operation. In cases where it is necessary to shift both ends of the operation the engine can be mounted on a movable frame or skids, or the engine can be set to one side of the operation and the cables can be led through guide sheaves which can be changed from time to time as the excavation progresses.

The company strongly recommends that ample power be provided for the operation of these scrapers. The best results in ordinary digging, for example, are obtained from the ½ cu. yd. scraper by using a 9x10 double cylinder, standard double-drum steam engine with ample boiler capacity. The power required for the larger scrapers will vary in proportion.

The scraper is built by Sauerman Bros., Chicago, Ill., in five standard sizes: ½, ¾, 1, 1½ and 2 cubic yard capacities. Other sizes can be built to order as specified. The concern is also in position to design the scraper to meet peculiar and special conditions.

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The New Orleans Silica Brick Co., New Orleans, La., has been incorporated with a capital stock of $300,000 to manufacture sand-lime bricks.

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Carney's Cement Co., Mankato, Minn., has been incorporated with $100,000 capital; to manufacture Carney's cement. Incorporators: Harry E. Carney, Leo J. Carney and Wm. Pearce, all of Mankato.

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An order for 300,000 sand-lime brick and 160,000 facing brick for use in the construction of the new Miami hotel has been landed by the Crume Brick Co., Dayton, Ohio. The facing brick is known as independent pavers and will be dark red in color.

# Business Building Through the Business Press

## A Big Step in the Advancement and Value of the Trade Journal — Discussion of the Philosophy of Advertising Narrowed Down to the Special Field of the Trade Press in Reaching a Special Class of Buyers.

The twentieth century spirit of co-operation among the great industries of the United States was exemplified in the recent annual convention of the National Federation of Trade Press Associations at the Congress hotel, Chicago.

The progressive methods and inspiring ideals of the leading trade journal publishers of the country were illustrated in a forceful manner at this great gathering. The editorial pages, the advertiser, and the reader were topics that were carefully discussed, and ways and means advanced to raise the standards of excellence of each publication, for the benefit of the industry which it represents.

In the editorial symposium, the value of the editorial pages and the best methods of disseminating ideas to the trade were reviewed. It was agreed that the REAL editor, in order to be of real value to his publication, must be out among the men of his industry, and that he should not prepare his articles merely from "DESK INFORMATION." He must be a practical man and develop practical ideas to be of any value to his readers. The value of human interest in the editorial pages was another topic that created a considerable interest, actuated by the desire to bring the reader to a keener appreciation.

The circulation symposium brought out a number of valuable ideas concerning the most approved methods of obtaining new subscribers. A suggestion offered was that one of the most important functions of the trade paper should be to interest and hold its regular readers. It has often been proven that many a real live man in an industry doesn't know how to read his trade paper. By helpful letters from his publisher, he often becomes a valuable reader of both the editorial and advertising pages.

The advertising symposium was full of interesting discussions for the trade paper advertiser. Two of the leading advertising managers of the United States delivered excellent addresses on the "Educational Value of Advertising" and "Business Building by the Business Press." Evidence was produced of the many instances where the trade paper advertiser had made sale upon sale through his publicity in this great medium. The efficiency of advertising to a selected field and the high purchasing value of the trade journal subscriber are sufficient reasons for steady and continued advertising. As one of these well known advertising managers stated: "Advertising in your trade journal can be likened to a snow storm—you can blanket the whole selected field in one night. To keep it covered, keep the snow falling."

A mass meeting of the subscribers and advertisers was productive of many valuable suggestions. Subscriber after subscriber, among them the leading merchants and manufacturers of the country, gave testimony of the great value and good work of the trade press. Three of the largest advertisers in the United States delivered convincing addresses illustrating their faith in the great value of publicity through this medium. "Advertising in the Trade Press as an Economizer of Selling Expense" was the keynote of one of these addresses, and this proposition was substantiated by speakers throughout the meeting.

The publishers' symposium gave the publishers an opportunity to help each other directly, with valuable suggestions concerning the best methods of raising the standards of excellence of their publications. The research work of the service bureaus' special services to the subscriber and the advertiser were brought out and enthusiastically endorsed.

The scope of this great convention can hardly be outlined in any short column of space, but the enthusiasm and profitable results which came forth from these meetings will undoubtedly show themselves in an increased efficiency of the trade press as a whole. There were a number of interesting facts which were brought out at the convention and which were arranged in tabulated form to explain certain phases of the trade publishing field. To refute the old argument that the trade paper field is overcrowded, it was shown that while there are 2,646 daily newspapers, 826 business publications and 195 general publications, there are only 400 trade papers serving a paid subscription field of 2,000,000 readers. Another interesting fact was that 17 per cent of the general public are specialized interests served by the trade press, and the average trade paper covers 65 per cent of this field. The number of advertisers in the trade paper field, contrasted with the number in the general advertising field, shows that there are 81,500 in the trade field and but 6,500 in the general field. Another interesting point brought out was that 64 per cent of the largest firms advertise in trade papers (30 per cent advertising continuously), and also that 65 per cent of these firms advertising in trade papers take space in every issue.

The leading publishers of the country attended this great gathering of progressive trade paper men, including representatives of the Iron Age, Practical Engineering, Factory, The Hardwood Record, the American Stone Trade, American Lumberman, Railway Review, ROCK PRODUCTS AND BUILDING MATERIALS. The value of such a convention should not be overlooked by the subscribers and advertisers of this great field, for the results of the meeting will directly accrue to their benefit.

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**By Charles L. Benjamin.**

Advertising Manager, Cutler-Hammer Mfg. Co., Milwaukee.

If I rightly understand the task assigned me it is to demonstrate two things: First, that in order to sell any product advertising of some kind is necessary and, second, that any product which appeals not to the general public but to a specific class of consumers can be more efficiently advertised in the trade and technical publications read by that particular class of persons than in any other way.

The answer to every sales problem is found when you find the answer to this question: How can I instill into the greatest possible number of persons, in the shortest possible time and at the least possible expense, so strong a desire to possess the article offered for sale that they will part with the amount of money necessary to purchase it rather than forego the possession of it?

The first function of advertising is to arouse this desire to possess the thing offered for sale, the second function to break down the resistance that must be overcome before the buyer will part with the number of dollars which must be given in exchange for it, the third function to create in the purchaser so strong a preference for the particular make of article advertised that when the last remnant of resistance crumbles away and he stands with the purchase price ready in his hand he cannot be induced to buy some other article, similar to that which first awakened his desire, but of another make.

To arouse desire is comparatively easy, to overcome the purchaser's reluctance to parting with his money is more difficult, to hold him firm in his intention to purchase *your* product when he is assailed on all sides by tempting offers from competitors is most difficult of all. If proof of the truth of this statement is wanted the history of any automobile sale will furnish it.

Not much effort is required to arouse in us the desire to own an automobile, but when we consider the many other uses we have for the money an automobile would cost us, we hestitate to part with it; then, little by little, by dint of persistent advertising, reinforced by the examples of friends and acquaintances who have already yielded to temptation —and seem none the worse for it—our resistance is worn away until the day comes when fifteen hundred or two thousand dollars in the bank seems less desirable to us than a buzz-wagon in the back yard and we start out to buy an automobile. Note the indefinite article—*an* automobile. Automobile advertising—not one particular automobile advertisement nor the advertising of any single manufacturer—but the great mass of automobile advertising collectively, constantly before us week after week, month after month, year after year, has brought us to the point of parting with our money; but which particular automobile manufacturer gets the money is still an open question.

Our income limits us to a car of a certain price and we may even have in mind one particular make of car when we start out to buy, but advertising has accomplished all that must be expected of it when it has created desire, overcome resistance and brought us to the market place with a *preference* for an article of a certain make. Sales are made by salesmen and by demonstrations or, in the case of business conducted on the mail-order plan, by demonstrations alone—that is to say, you smoke ten and if you don't like 'em you return the ninety that are left in the box and get your money back.

### Carriages Not Advertised.

Before we knew anything about self-propelled vehicles the horse and carriage seemed to be a pretty good sort of conveyance. You could go from place to place with comfort, visit your friends, take drives into the country, and except that you could not go so fast nor so far, could do with a horse and carriage thirty years ago, practically the same things that you do with an automobile today. The ownership of a horse and carriage conferred a certain distinction then, just as the possession of an automobile does now. The cost of purchasing and maintaining a horse and carriage then was not greater than the cost of purchasing and maintaining an automobile now. Why is it, then, 30 years ago there was not the same craze for horses and carriages that there is for the automobile today? Look at the newspapers and magazines of 30 years ago and you will learn at least one of the reasons why. You will look a long while before you find a single advertisement of horses and carriages. The passive race of business men that preceded the virile race of automobile manufacturers were not advertisers, they made no attempt to create desire, they merely announced spasmodically that they were prepared to supply the demand.

Demand for anything except the necessities of life is not spontaneous, it must be created. The force of example is powerful, but I cannot purchase all the things I see others enjoying, and the purveyor of the things I can do without must tempt me strongly and continually if he would move me to action. This truth applies not only to automobiles, but to everything that is bought and sold. We remain content with the things we have until discontent is implanted in us by some agency outside ourselves. The fruit of the tree of knowledge did not tempt our first parents until the serpent advertised it, and we have good authority (See St. Matthew, Chapter XX, verse 16) for believing that the serpent is wise.

I have spoken of the force of example as a powerful agency in creating desire for those things which we can do without. What is this force of example that gives birth to this desire? It is the knowledge that other persons are deriving pleasure or profit from things that we do not possess. Every article on the market today was at one time a new and unknown product. Every article of which you or I have any knowledge has become known to us, and could only have become known to us in one of the two ways in which it is possible to acquire information, by sign or by report—that is to say, by demonstration or by verbal advertising, oral, written or printed.

### Advertising Creates "Epidemics."

Some one person must first be persuaded to try the new product; having made a convert of him you have established a focus of contagion from which the fever of desire to possess that article will spread to others. Each new focus that you create adds impetus to the spread of the contagion until in the course of time it becomes epidemic. This is the history of the growth of every business. The germ once implanted in a few persons will spread to others with whom these come in contact. Why, then, is further persuasion necessary since, when once a start is made, the business will grow merely by the force of example? Because the contagion that is spreads slowly, the man who first adopts the new product can affect only those with whom he comes in personal contact; but advertising flings the seeds of infection to the four winds of heaven and inoculates by thousands instead of by ones and twos.

### What Tobacco Teaches.

Prior to the discovery of the New World tobacco was unknown in Europe. Columbus and his companions on their return to Spain in 1493 brought the

first tidings of it. News of it spread slowly by word of mouth. Forty years later it began to be mentioned in printed publications; the news spread faster and further. Twenty years more and the plant itself was introduced into Europe, but its use did not become widespread until half a century later. More than a hundred years were needed to establish the use of tobacco by force of example alone.

Like the onward march of the glacier the force of example is irresistible but infinitely slow; advertising is like the snow storm that covers the country in a single night—but don't forget that if you want to keep the country covered you have got to keep the snow falling or the heat of competition will melt it.

The average man comes into personal contact with comparatively few of his fellow citizens and his horizon is limited to that tiny portion of the earth's surface covered by the city in which he lives. It is only when he picks up his newspaper, his magazine or his trade journal that he is lifted out of a well, as it were, and is placed upon a pinnacle with the whole world spread out at his feet. The force of example is multiplied a thousand fold by printed publications which bring to us and make us familiar with products and processes of which we might otherwise never know. Take away our modern means of transmitting information and you plunge us back into the Dark Ages when knowledge could spread slowly from man to man only by word of mouth.

The history of advertising is merely one phase of the history of communication between man and man, just as the history of commerce is one phase of the history of transportation. The oared galley and the beast of burden, the sailing vessel and the wheeled vehicle, the steamship and the railway, each in turn enabled man to accomplish an old result in a new and more efficient way. So the art of advertising has progressed step by step with each improvement that has been made in the methods of disseminating information.

Another thing is to be noted. The advent of the wheeled vehicle did not deprive the beast of burden of his job, there are still occasions when it is wiser to use the pack-horse or the camel than the cart; the railway did not utterly deprive the wheeled vehicle of its work, all that it did was to contract the cart's field of operations to certain well defined limits beyond which it is known to be less efficient than the railway. Just in this same manner each new method of disseminating information (which means each new method of advertising) has not resulted in rendering obsolete the older methods, but has merely served to restrict the use of each method, old or new, to the kind of work which it is best fitted to do.

### Advertising a Sales Help

The earliest form of advertising—advertising by word of mouth—still persists today, being personified in the salesman. And here it should be noted that the object of all commercial advertising (excepting the advertising of such articles as are sold by mail) is not to actually sell goods but to make it easier for the salesman to sell them, in other words to increase the salesman's efficiency.

To the salesman behind the counter, the salesman of the distributer, advertising brings the customer and it brings him in a state of mind favorable to the thing advertised. For the traveling salesman, the salesman of the manufacturer, advertising not only paves the way for a favorable reception but indicates by the response it produces where orders are most likely to be found. Guided by these indications the salesman wastes no time in haphazard calls, but having discovered the ten people out of a thousand, let us say, who are interested in the goods he has to sell, he passes by the nine hundred and ninety who have no order waiting for him and goes straight to the ten that have.

Figure out for yourself how long it would take him and how much it would cost the manufacturer to have the salesman discover for himself without the aid of advertising these ten customers out of a thousand prospects. Here is a plum tree laden with fruit. Must you climb the tree and examine each plum to see if it is ripe? No, shake the tree and the ripe plums will fall.

### Present-Day Caution.

Just at present, when plums are not plentiful, there is a marked tendency to cancel or curtail advertising contracts. You may be sure that advertising men are not responsible for this—we know our business better—but unfortunately for advertising and advertising men the purse that holds the appropriation may be opened or closed at will by the bosses of the business, who nearly always are recruited from the sales force and have the salesman's mental bias.

To one accustomed to calculate the measure of success achieved in terms of orders taken, it is, perhaps, natural to believe that expense useless which produces no visible results in the form of orders. Few people outside of advertising men think very deeply on the subject of advertising and hence there is not a general realization of the fact that advertising does not pertain to the realm of material things but to the domain of mind.

To create desire, to overcome little by little that mental inertia which is favorable to accustomed things and unfavorable to that which is new and untried, to instill in the prospective purchaser's mind a preference for the thing advertised—that is the work of the advertising man. Night and day, summer and winter, in times of plenty and of panic the forces of advertising are at work. Nothing but death or mental decay prevents a man's mind from receiving new impressions, and though the gloom and chill of business fear may retard the growth of the seed implanted by advertising in the prospective customer's mind it will bear fruit when the sun shines again. The thing to remember is that even under the most favorable conditions the germination of the seed requires time, that for a succession of crops there must be an antecedent succession of plantings and that the surest way to produce a famine, or to prolong one, is to neglect to sow the seed.

Every advertising problem is fundamentally the problem of selecting the most efficient medium for disseminating information concerning the thing advertised among the class of persons most likely to become purchasers. If the article to be advertised is one of general consumption—a breakfast food, let us say—then, obviously, publications of general circulation are the ones to use; but if instead of an article of general consumption we are to advertise some product that is purchased, or specified, by a particular trade or profession, then it should be evident that the highest degree of efficiency will be attained by selecting as our advertising mediums those trade or technical publications which circulate among the people belonging to that particular industry or profession. Furthermore, if you succeed in making converts of those who constitute the trade or profession to which your product pertains, they in turn will make converts of the rest of mankind for you.

We know that civilization leads to specialization, that the more highly civilized a people become the more marked is the tendency for individuals to devote themselves to one particular branch of the world's work, leaving the other branches to other men. Two things result from this division of labor; one result is that by continued application to one line of work certain men become more proficient than others in that particular line and, because of this greater proficiency, are called upon to perform this class of work whenever there is need of it; and the other result is that these same men, because their time is so fully occupied with the work in which they specialize, seldom have opportunity to gain more than a superficial knowledge of other lines of work. Hence it comes about that while mankind collectively possesses a vast fund of knowledge, the individual possesses first hand information on only a few subjects, and whenever he has need of information concerning things outside his own limited field he must have recourse to other men who have specialized in the branches of knowledge of which he is ignorant.

If I should ask you whether the earth or the sun is the center of the solar system you would answer, glibly enough, "the sun;" but if I should press you further you would be obliged to admit that in so answering you were merely repeating the opinion of the astronomers; this is to say, the opinion of that comparatively small group of experts in astro-physics who shape the opinions of the rest of us on all matters pertaining to celestial mechanics. Now, just as this small group of experts in astro-physics shape our opinions on all matters pertaining to celestial mechanics, so another small group of men, the mechanical engineers, shape our opinions on all matters pertaining to terrestial mechanics, and still another group, the electrical engineers, give us our opinions ready made on all things electrical. Architects, builders and manufacturers of building materials determine the form and fabric of our habitations and textile manufacturers and clothiers decide what we shall wear. There is nothing new in government by commission. We are all of us, all the time, governed by commissions—commissions of experts who know more about certain subjects than we do and to whose opinions we defer.

It is to experts that the pages of technical and trade publications give access—the men who mold the minds of the rest of mankind on matters pertaining to their special fields of endeavor. And surely the quintessence of advertising efficiency is found when we find, as we find in the business press, a concentrated circulation which expressed in figures may be multiplied by thousands and still fall short of indicating the actual number of persons who ultimately will be influenced by such advertising.

### Business Good; Warehouse Full.

The Valley Sand & Supply Co., whose plant is located at Parnassus, Pa., is doing a fine business this fall. This company carries a big warehouse full of cement, lime, white sand, plaster of Paris, metal lath, etc.

## ONE PROPITIOUS FEATURE FOR BUSINESS NEXT SPRING.

(Continued from Page 25.)

a paper match box. The very factory that started that fire is now being rebuilt of wood as before, possibly a generation hence to be the means of starting another conflagration and again subtracting a big chunk of millions from the total accumulated wealth of the country.

In vain have we worked for years with building codes which under our laws are necessarily inefficient to a degree, but there is no need for that element in most building codes which is conceived in chicanery and steeped in the self interest of political framers.

It is encouraging, to note that from time to time, with the revisions of building codes, that one improvement after another slips in and by and by possibly, when the composite mind of mankind arrives at the conclusion that honesty is really the best policy in full fledged measure, we shall have building codes that will give the people all the blessings that science and the work of honest men have had ready for them on tap all the while for years.

Professor Ira H. Woolson of Columbia University, long respected as a leader in the developments of fireproof construction and now consulting engineer of the fire underwriters' organization, has done notable work on the new building code for New York which is now in the hands of the printers. In a recent letter on the subject he says:

"We have just finished a complete revision of our Building Code and it is now in the printers' hands.

"We have taken a strong stand throughout the Code in favor of fire resisting materials, and have limited frame construction as far as we felt it was consistent to do so. When it has been conclusively demonstrated that two and three story dwellings can be erected of fire resistive construction as cheaply as wooden construction or at least at a very slight advance in cost, and at the same time have the two types of construction give the owner practically the same results as regards architectural effects and general utility, it will be rational to prohibit the frame building outside of the fire limits. It is the general practice now to exclude them from within the fire limits.

"The city of Salem has been making vigorous efforts to obtain bids for a tenement grade of incombustible dwellings, and a considerable number of different types of building construction have been presented to the building authorities in the hope that they might be recommended. I was recently informed by one of the citizens of that city who has taken an active interest in this matter, that their experience has been disappointing in that actual bids upon definite plans have shown a considerable increase in cost for fireproof construction over that of wood construction. The increase in general is sufficient to exclude the better construction. He said that where large numbers of houses of practically the same design were built by a company the variation in the cost of the two types of constructions was very greatly reduced. In order to make a sweeping requirement of this character it would be necessary to have some variety of construction so as to permit competition, otherwise the legislation would produce obnoxious favoritism.

"We know that considerable study has been devoted to this subject by builders during the last five years, and much progress has been made. We have no doubt that much greater progress will be made in the next few years. The time is rapidly approaching when economy in first cost of construction of small dwelling houses will no longer be an ultimate argument in favor of the use of combustible material."

Without a doubt Professor Woolson has secured some improvements in the code in the direction of better fireproofing requirements. His advocacy of fireproof construction is sincere and savors very little of any insidious commercial influences; and the new code when issued will be all the more interesting from the fact that Professor Woolson has given a great deal of consistent work to it.

## ROCK PRODUCTS and BUILDING MATERIALS — *Index to Advertisements* — OCTOBER 22, 1914.

# BOOKS FOR THE TRADE

## Cement Users

**Portland Cement for Users**
Henry Faija and D. B. Butler. Price $1.20. C

**Cements, Mortars and Concrete**
Myron C. Falk. Price $2.50 C

**Reinforced Concrete**
W. H. Gibson and W. L. Webb. Price $1.00. C

**Hand Book of Cost, Data**
Halbert P. Gillette. Price $5.00. C

**Concrete Construction**
H. P. Gillette and C. S. Hill. Price $5.00. C

**Cement Workers' and Plasterers' Ready Reference**
H. G. Richey. Price $1.50. C

**Reinforced Concrete**
A. W. Buel and C. S. Hill. Price $5.00. C

**Concrete**
Edward Godfrey. Price $2.50. C

**Reinforced Concrete**
C. F. Marsh and Wm. Dunn. Price $7.00. C

**Practical Treatise on Foundations**
W. Patton. Price $5.00. C

**Concrete**
Thomas Potter. Price $3.00. C

**Cement and Concrete**
Louis C. Sabin. Price $5.00. C

**Concrete and Reinforced Concrete Construction**
Homer A. Reid. Price $5.00. C

**Handbook on Reinforced Concrete**
F. D. Warren. Price $2.50. C

**Popular Handbook for Cement and Concrete Users**
Myron H. Lewis & A H. Chandler. Price $2.50. C

**A Manual of Cement Testing**
Richards & North. Price $1.50. V

**A Treatise on Cement Specifications**
Jerome Cochran. Price $1.00. V

**Manual of Reinforced Concrete and Concrete Block Construction**
Chas. F. Marsh and Wm. Dunn. Price $2.50. V

## Cement and Lime Manufacturers

**Bungalows, Camps and Mountain Houses**
Price $2.00. C

**Limes, Cements and Mortars, Concretes, Mastics, etc.**
G. R. Burnell. Price $0.60. C

**Instructions to Inspectors on Reinforced Concrete Construction**
Geo. P. Carver. Price $0.50. C

**Cements, Limes and Plasters**
Edwin C. Eckel. Price $6.00. C

**Practical Treatise on Limes, Hydraulic Cements and Mortars**
Gen. Q. A. Gillmore. Price $4.00. C

**Mortars, Plasters, Stuccos, Concretes, Portland Cements and Compositions**
F. Hodgson. Price $1.50. C

**Concrete Factories**
Robert W. Lesley. Price $1.00. C

**Portland Cement; Composition.**
Richard K. Meade. Price 4.50. C

**Manufacture of Concrete Blocks**
Wm. M. Torrence and others. Price $1.50. C

**Practical Cement Testing**
W. Purves Taylor, Price $3.00. C

**Foundation and Concrete Works**
E. Dobson. Price $0.60. C

**Reinforced Concrete. Mechanic and Elementary Design**
John P. Brooks. Price $2.00. C

**Concrete and Stucco Houses**
O. C. Hering. Price $2.00. C

**Concrete Costs**
Taylor—Thompson. Price $5.00. C

## Architects and Engineers

**Building Construction and Superintendence—Masonry Work.**
F. E. Kidder. Price $6.00. C

**Theory of Steel-Concrete Arches and Vaulted Structures.** Wm. Cain. Price $0.50. C

**Concrete Country Residences.** Price $1.00. C

**Graphical Handbook for Reinforced Concrete Design**
John Hawkesworth, C. E. Price $2.50. C

**Theory and Design of Reinforced Concrete Arches**
Arvid Reuterdahl. Price $2.00. C

**Treatise on Concrete, Plain and Reinforced.** F. W. Taylor and S. E. Thompson. Price $5.00. C

**Concrete Steel.** W. N. Twelvetrees. Price $1.90. C

**General Specifications for Concrete Work as Applied to Building Construction**
Wilbur J. Watson. Price $0.50. C

**Rocks, Minerals and Stocks**
F. H. Smith. Price $1.50. C

**Strength of Materials**
Edward R. Maurer. Price $1.00. C

**Highway Construction.** Austin T. Byrne and Alfred E. Phillips. Price $1.00. C

**Refrigeration.** Chas. Dickerman and Francis H. Boyer. Price $1.00. C

**Plumbing.** Wm. Beall, Gray and Chas. B. Ball. Price $1.50. C

**Estimating.** Edward Nichols. Price $1.00. C

**Building Superintendence**
Edward Nichols. Price $1.50. C

**Hollow Tile House.** Squires. Price $2.50. C

**Rock Excavating and Blasting**
J. J. Cosgrove. Price $2.50. J J C

**Estimating and Contracting**
W. A. Radford. Price $2.00.

**Brick Houses**
W. A. Radford. Price $1.00

**Cement Houses**
W. A. Radford. Price $1.00.

**Cement and How to Use It**
W. A. Radford. Price $1.00.

ROCK PRODUCTS AND BUILDING MATERIALS 537 S. DEARBORN STREET CHICAGO

# CLASSIFIED BUSINESS DIRECTORY

### BAGS AND BAG TYERS.
Faeberhill Mfg. Co. (bag tyers).
Jalte Company, The.
Urschel Bates Valve Bag Co.
West Jersey Bag Co., The.

### BELTING.
H. W. Caldwell & Co.
Dull & Co., R. W.
B. F. Goodrich & Co.
Imperial Belting Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

### BRICK.
Belden Brick Co.
Hocking Valley Clay Co.
Metropolitan Paving Brick Co.

### BRICK CLAMPS.
The P. D. Crane Co.

### BRICK PAVING.
Alton Brick Co.
Harris Brick Co.
Metropolitan Paving Brick Co.
National Paving Brick Mfrs. Assoc.
Thornton Fire Brick Co.

### BUCKETS, DUMPING AND GRAB.
Atlas Car & Mfg. Co.
H. W. Caldwell & Co.
Hendrick Mfg. Co.
McMyler-Interstate Co.
Owen Bucket Co.
Willis Shaw Mchy. Co.

### CABLES.
American Steel & Wire Co.
Dull & Co., R. W.
Sauerman Bros.

### CASTINGS.
Allis-Chalmers Mfg. Co.
Taylor-Wharton Iron & Steel Co.

### CEMENT, HYDRAULIC.
Carolina Portland Cement Co.

### CEMENT, PORTLAND.
Atlas Portland Cement Co.
Carolina Portland Cement Co.
Chicago Portland Cement Co.
Coplay Cement Mfg. Co.
Dexter Portland Cement Co.
French, Samuel H., & Co.
Giant Port. Cement Co.
Kansas City Portland Cement Co.
Lehigh Portland Cement Co.
Marquette Cement Mfg. Co.
Northwestern States Portland Cement Co.
Ohio & Western Lime Co.
Phoenix Portland Cement Co.
Sandusky Portland Cement Co.
St. Louis Portland Cement Works.
Security Cement & Lime Co.
Union Sand & Material Co.
Universal Portland Cement Co.
Vulcanite Portland Cement Co.
Whitehall Portland Cement Mfg. Co.
Wolverine Portland Cement Co.
Woodville Lime & Cement Co., The.

### CHAINS.
Columbus Chain Co., The.
Jeffrey Mfg. Co.
Taylor-Wharton Iron & Steel Co.

### CLAYWORKING MCHY.
American Clay Mchy. Co.
Bartlett, C. O., & Snow Co.

### COAL CHUTES.
Kewanee Mfg. Co.

### COLORINGS, DRY AND MORTAR.
Samuel Cabot.
Chattanooga Paint Co.
Clinton Metallic Paint Co.
Macneal, James B., & Co.
Ricketson Mineral Paint Works.
Williams, C. K., & Co.

### COMPRESSORS.
Allis-Chalmers Mfg. Co.
Clayton Air Compressor Co.

### CONCRETE MIXERS.
Jaeger Mach. Co.
Miscampbell, H.
Power & Mining Mach. Co.

### CONCRETE REINFORCEMENT.
American Steel & Wire Co.

### CONVEYORS AND ELEVATORS.
Allis-Chalmers Manufacturing Co.
Austin Mfg. Co.
Bartlett, C. O., & Snow Co.
Caldwell, H. W., & Sons Co.
Dull, Raymond W., & Co.
Ehrsam, J. B., & Sons Mfg. Co.
Goodrich Co., The B. F.
Jeffrey Manufacturing Co.
Link Belt Co.
McMyler-Interstate Co.
McLanahan Stone Machine Co.
Power & Mining Mach. Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

### CONSULTING GEOLOGISTS.
Grimsley, G. P., Ph. D.
Robt. W. Hunt & Co.

### CORNER BEADS.
Bostwick Steel Lath Co., The.
Penn Metal Co.

### CRANES—LOCOMOTIVE AND GANTRY.
Link Belt Co.
McMyler-Interstate Co.

### CRUSHERS AND PULVERIZERS.
Allis-Chalmers Manufacturing Co.
American Pulverizer Co.
Austin Mfg. Co.
Bacon, Earl C.
Bartlett, C. O., & Snow Co.
Bonnot Co., The.
Bradley Pulverizer Co.
Butterworth & Lowe.
Ehrsam, J. B., & Sons Mfg. Co.
Jeffrey Manufacturing Co.
Kent Mill Co.
Lewistown Foundry & Machine Co.
Martin, Henry.
McLanahan Stone Machine Co.
Pennsylvania Crusher Co.
Power & Mining Mach. Co.
Raymond Impact Pulverizer Co.
Sturtevant Mill Co.
Taylor-Wharton Iron & Steel Co.
Traylor Eng. & Mfg. Co.
Webb City & Carterville F. & M. Wks.
Williams Pat. Crusher & Pulverizer Co.

### DRAIN TILE.
American Brick & Tile Co.
American Clay Co.
Mason City Brick & Tile Co.

### DRILLS.
Cyclone Quarry Drill Co.
Howells Mining Drill Co.
Loomis Machine Co.

### DRYERS.
American Process Co.
Bartlett, C. O., & Snow Co.
Ruggles-Coles Eng. Co.
Worrell, S. E.

### DUMP CARS.
Atlas Car & Mfg. Co.
Austin Mfg. Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

### ENGINEERS.
Bacon, Earl C.
Buckbee Co., J. C.
Duff Patents Co., Inc.
Dull, Raymond W., & Co.
Fuller Engineering Co.
Grimsley, G. P.
Robt. W. Hunt & Co.
Improved Equipment Co.
Meade, R. K.
Sauerman Bros.
Schaffer Eng. & Equip. Co.
Smidth & Co., F. L.
Stephens-Adamson Mfg. Co.

### ENGINES.
Allis-Chalmers Mfg. Co.
Jackson & Church Co.
Power & Mining Mach. Co.

### EXCAVATORS.
Buckbee Co., J. C.
Raymond W. Dull Co.
Indianapolis Cable Excavator Co.
McMyler-Interstate Co.
Jackson & Church Co.
Owen Bucket Co.
Sauerman Bros.
Weller Mfg. Co.

### FIRE BRICK.
Carolina Portland Cement Co.
Improved Equipment Co.
Mason City Brick & Tile Co.
Thornton Fire Brick Co.
Thompson-Armstrong Co.
Union Mining Co.

### FLUE LININGS.
Thompson-Armstrong Co.

### FURNACES FOR SPECIAL PURPOSES.
Improved Equipment Co.

### GEARS.
Caldwell, H. W., & Son Co.
Stephens-Adamson Mfg. Co.
Taylor-Wharton Iron & Steel Co.
Weller Mfg. Co.

### GLASS SAND MACHINERY.
Lewiston Fdy. & Mach. Co.

### GYPSUM BLOCK.
American Cement Plaster Co.
U. S. Gypsum Co.
Plymouth Gypsum Co.

### GYPSUM—PLASTER.
Acme Cement Plaster Co.
American Cement Plaster Co.
American Keene Cement Co.
Best Bros. Keene's Cement Co.
Cardiff Gypsum Co.
Carolina Portland Cement Co.
National Mortar & Supply Co.
Ohio & Western Lime Co.
Plymouth Gypsum Co.
U. S. Gypsum Co.
Wheeling Wall Plaster Co.

### HAIR
Ohio & Western Lime Co.

### HOISTS, ELECTRIC AND STEAM.
Allis-Chalmers Mfg. Co.
Buckbee Co., J. C.

### HOLLOW CLAY TILE.
American Clay Co.
Mason City Brick & Tile Co.
Metropolitan Paving Brick Co.
Whitacre Fireproofing Co.

### HYDRATING MCHY.
Kritzer, Co., The.
H. Miscampbell.

### LIME.
Carolina P. C. Co.
Hannibal Lime Co.
Kelley Island Lime & Trans. Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Niagara Gypsum Co.
Ohio & Western Lime Co., The.
Owens & Son, John D.
Scioto Lime & Stone Co.
Security Cement & Lime Co.
Woodville Lime & Cement Co.

### LIME, HYDRATED.
Hannibal Lime Co.
Kelley Island Lime & Transport Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Niagara Gypsum Co.
Ohio & Western Lime Co., The.
Owens & Son, John D.
Scioto Lime & Stone Co.
Security Cement & Lime Co.
Woodville Lime & Cement Co., The.

### LIME KILNS.
Improved Equipment Co.

### LOADERS.
Jeffrey Mfg. Co.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

### LOCOMOTIVES.
Davenport Locomotive Wks.
Willis Shaw Mchy. Co.

### MANGANESE STEEL.
Allis-Chalmers Mfg. Co.
Taylor-Wharton Iron & Steel Co.

### METAL LATH.
Bostwick Steel Lath Co.
Carolina Portland Cement Co.
North Western Expanded Metal Co.
Sykes Metal Lath & Roofing Co.

### MOTOR TRUCKS.
Kissel Motor Car Co.

### PAINT AND COATINGS.
Samuel Cabot.
Chattanooga Paint Co.
James B. Macneal & Co.
Ricketson Mineral Paint Co.
C. K. Williams & Co.

### PEBBLES.
Canada Pebble Co.

### PERFORATED METALS.
Allis-Chalmers Mfg. Co.
Johnson & Chapman.
Hendrick Mfg. Co.

### PREPARED ROOFING—SHINGLES.
Carolina Portland Cement Co.
The Heppes Co.
Reynolds Asphalt Shingle Co.

### PLASTER.
See Gypsum.

### PLASTER BOARD.
American Cement Plaster Co.
Niagara Gypsum Co.
Plymouth Gypsum Co.
U. S. Gypsum Co.

### PLASTER MCHY.
Butterworth & Lowe.
Dunning, W. D.
Ehrsam, J. B., & Sons Mfg. Co.
Miscampbell, H.
Williams Pat. Crusher & Pulverizer Co.

### PUMPS.
Allis-Chalmers Mfg. Co.
Amer. Well Wks.

### ROAD MACHINERY.
Austin Mfg. Co.
Troy Wagon Works.

### ROOFING-METAL.
Sykes Metal Lath & Roofing Co.

### SEWER PIPE.
Houston Bros. Co.
Plymouth Clay Products Co.
Thompson-Armstrong Co.

### SILO BLOCKS.
American Brick & Tile Co.
Mason City Brick & Tile Co.

### QUARRY CARS.
See Dump Cars.

### SAND.
Crossley, Geo. C.
Union Sand & Material Co.

### SAND AND GRAVEL WASHING PLANTS.
Dull & Co., Raymond W.
Stephens-Adamson Mfg. Co.
Webster Mfg. Co.
Weller Mfg. Co.

### SAND LIME BRICK MACHINERY.
Amer. Clay Machy. Co.
Jackson & Church.

### SCREENS.
Allis-Chalmers Mfg. Co.
American Pulverizer Co.
Butterworth & Lowe.
Dull & Co., Raymond W.
Ehrsam, J. B., & Sons Mfg. Co.
Hendricks Mfg. Co.
Johnston & Chapman Co.
McLanahan Stone Machine Co.
Power & Mining Mach. Co.
Stephens-Adamson Mfg. Co.
Sturtevant Mill Co.
Webster Mfg. Company
Weller Mfg. Co.

### SECOND-HAND MACHINERY.
Bourse.
Cleveland Belting & Mach. Co.
Shaw Mach. Co., Willis.

### STEAM SHOVELS
Thew Automatic Shovel Co.
Willis Shaw Mchy. Co.

### SINK AND FLOAT TESTERS.
Pennsylvania Crusher Co.

### STEAM SHOVEL TEETH.
Taylor-Wharton Iron & Steel Co.

### STUCCO RETARDER.
National Retarder Co.

### TIRES—RUBBER.
B. F. Goodrich Co.

### TRAMWAYS.
Consolidated Tramway Co.

### TUBE MILLS.
Allis-Chalmers Manufacturing Co.
Jackson & Church Co.
Power & Mining Mach. Co.
Smidth & Co., F. L.

### WAGONS.
Troy Wagon Wks. Co., The

### WALL PLUGS AND TIES.
Allegheny Steel Band Co.
Sykes Metal Lath & Roofing Co.

### WATERPROOFING.
Cabot, Samuel, Inc.
Carolina Portland Cement Co.
Ceresit Waterproofing Co.
Hercules Waterproofing Cement Co.
Maumee Chemical Co.
Sandusky Portland Cement Co.

### WEIGHING MACHINES.
Automatic Weighing Machine Co.
Schaffer Eng. & Equip. Co.
Sturtevant Mill Co.

### WIRE AND WIRE FENCING.
American Steel & Wire Co.

### WIRE ROPE.
American Steel & Wire Co.
Buckbee Co., J. C.

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